

Rathbun Lake 2000 Water Quality Report

1. General.

- a. **Project location.** Rathbun Dam is located at approximately river mile 142.3 on the Chariton River, 5 miles north of Centerville, Iowa. The project watershed encompasses 549 square miles and lies within Appanoose County, Iowa.
- b. **Authorized project purposes.** Flood control, water supply, navigation (on the Missouri River), and water quality are the primary project purposes; equally important, however, are its fish and wildlife resources and recreation benefits.
- c. **Pertinent data.**

	Surface Elevation (ft. above m.s.l.)	Current Capacity (1,000 A.F.)	Surface Area (acres)	Shoreline (miles)
Pools				
Flood Control	926.0	345.5	21,000	
Multipurpose	904.0	190.7*	11,000	155
Inactive		8.6**		
Total		536.2		

Total Drainage Area: 549 sq. miles

Average Annual Inflow: 355,704 acre-feet

* Based on most recent hydrographic survey.

** Contained in multipurpose pool

2. Activities and studies of the year.

The Water Quality Unit (PM-PR-W) and Rathbun Lake Project (OF-RA) continued to cooperate with the Iowa State University Limnology Laboratory (ISU) and local, state, and other Federal agencies in carrying out a monitoring plan for the Chariton River watershed and Rathbun Lake. The 2000 monitoring plan involved the PM-PR-W and OF-RA in monthly sampling of four lake stations and the outlet. Ambient profiling of temperature, dissolved oxygen (DO), conductivity, pH, and oxidation reduction potential (orp) or redox; measurement of photic zone and secchi depths; surface, mid-depth, and near bottom water sample collections; and sediment sampling were performed. Monthly sampling of 14 tributaries was carried out by ISU personnel. The latter also measured surface water temperature, DO, conductivity, pH, and discharge and performed fecal coliform, total coliform, enterococci, E. coli, chloride, silica, and caffeine analyses. PM-PR-W performed turbidity, suspended solids, total alkalinity, chlorophyll, and

immunoassay herbicide analyses on stream and lake samples. The unit also performed limited fecal coliform analyses to supplement monthly lake testing by a private contractor. In addition, the Chemical and Materials Quality Assurance Laboratory (CMQAL) performed nitrogen and phosphorus group, sulfate, chemical oxygen demand, total dissolved solids, volatile solids, total and dissolved iron, total and dissolved manganese, total and dissolved organic carbon, and gas chromatographic (GC) pesticide analyses on stream and lake samples. CMQAL also analyzed sediment and elutriate samples for the above parameters.

The ultimate goal of the cooperative effort is to implement a watershed management plan, which will reduce point and nonpoint pollution entering the reservoir. The local sponsor of the project is the Chariton Valley Resource Conservation and Development (RC&D) Program administered by the Natural Resources Conservation Service (NRCS) with the support of other Federal agricultural agencies. Major funding for implementation of the plan is by an EPA Clean Water Act 319 Grant. In support of this effort, PM-PR-W is contributing its field and analytical services and funding the analytical work of CMQAL.

The OF-RA is to be commended for its continued support of water quality monitoring of Rathbun Lake and its tributaries. The OF-RA personnel deserving special recognition include Messrs. Paul Egeland and William Duey.

3. Existing conditions.

a. **Inflow.** Over the period of record, most of the tributaries have exhibited eutrophic to hypereutrophic nutrient levels and elevated herbicide levels. The high nutrient and herbicide concentrations have been associated with the highest total suspended solids (TSS) and turbidities indicating the significant impact of storm runoff events on stream water quality. Total nitrogen (TN) concentrations, comprised of ammonia, nitrite, nitrate, and total Kjeldahl nitrogen, have frequently exceeded the EPA generalized stream eutrophy criterion of 1 mg/L. Similarly, total phosphorus (TP) concentrations have generally exceeded the stream eutrophy criterion of 0.1 mg/L. Atrazine concentrations frequently exceeded the EPA criterion for the protection of aquatic life (1 ug/L) and the maximum contaminant level (MCL) for drinking water supplies (3 ug/L). Also, cyanazine concentrations have exceeded the maximum contaminant level goal (MCLG) for drinking water supplies (1 ug/L) on some occasions.

As a result of fewer runoff events during the 2000 sampling period, mean annual nutrient and herbicide concentrations were generally lower than those observed over the last three years. However, even with the dry conditions, nutrient levels still remained within eutrophic ranges. For the 10 survey periods, Jordan Creek (RA-37), Five Mile Creek (RA-42), and Honey Creek (RA-43) had mean TN concentrations more than three times the generalized eutrophy criterion for streams (Table 1). Mean and maximum TN concentrations were RA-37, 3.34 mg/L and 7.87 mg/L; RA-42, 3.22 mg/L and 6.08 mg/L; and RA-43, 3.21 mg/L and 7.80 mg/L, respectively.

Table 1. 2000 Stream Statistical Data.

STAT		TN mg/L	TP mg/L	TSS mg/L	TURB NTU	ATZ ug/L	ALA ug/L	METO ug/L	CYAN ug/L
RA-12 South Fork Chariton R	Mean	1.33	0.24	46	33	2.18	0.1	0.69	0.1
	Min.	0.4	0.1	6.5	10	0.1	<0.05	<0.05	<0.04
	Max.	3.49	0.52	183	115	16.6	0.16	2.47	0.2
RA-15 Chariton R	Mean	1.38	0.29	66	42	0.74	0.12	0.62	0.1
	Min.	0.3	0.1	7	6.7	0.07	<0.05	<0.05	<0.04
	Max.	3.71	0.73	400	235	3.26	0.3	3.35	0.2
RA-32 Chariton R	Mean	2.19	0.33	131	52	3.72	0.19	1.29	0.17
	Min.	1	0.08	5.6	5.6	0.93	0.11	<0.05	<0.04
	Max.	5.63	0.63	439	127	17.8	0.3	4.73	0.28
RA-33 Chariton R	Mean	1.88	0.25	32	27	3.13	0.1	0.67	0.11
	Min.	0.71	0.13	3.4	7	0.08	<0.05	<0.05	<0.04
	Max.	4.92	0.43	137	90	18.1	0.17	2.04	0.17
RA-34 Unnamed Ck	* Dry 8 of 10 surveys								
RA-35 South Fork Chariton R	Mean	2.06	0.34	43	35	1.31	0.1	0.84	0.13
	Min.	0.83	0.04	3.6	3.7	0.19	<0.05	<0.05	<0.04
	Max.	4.3	0.8	106	75	3.71	0.19	2.84	0.18
RA-36 Nine Mile Ck	Mean	2.08	0.25	21	22	1.43	0.11	1.11	0.18
	Min.	0.2	0.07	3.1	4.5	0.08	<0.05	<0.05	<0.04
	Max.	5.26	0.46	57	65	4.19	0.19	2.12	0.25
RA-37 Jordan Ck	Mean	3.34	0.23	32	29	3.86	0.09	0.97	0.13
	Min.	0.67	0.04	7.6	6	<0.05	<0.05	<0.05	<0.04
	Max.	7.87	0.51	70	58	19.3	0.12	2.2	0.17
RA-38 Walker Ck	Mean	1.83	0.17	25	20	5.46	0.12	1.17	0.13
	Min.	0.5	0.06	4.8	2.9	<0.05	<0.05	<0.05	<0.04
	Max.	4.43	0.4	50	60	32.3	0.16	3.67	0.17
RA-39 Jackson Ck	Mean	2.03	0.41	53	42	1.9		0.55	0.1
	Min.	0.94	0.25	5.2	7.1	0.07	<0.05	<0.05	<0.04
	Max.	3.32	0.61	141	93	14.9	0.13	1.65	0.17
RA-40 Honey Ck	Mean	2.02	0.31	108	48	0.84	0.08	0.78	0.1
	Min.	0.81	0.14	5.2	5.4	<0.05	<0.05	<0.05	<0.04
	Max.	4.83	0.49	533	170	2.35	0.08	2.51	0.18
RA-41 Wolf Ck	Mean	1.51	0.21	52	36	0.7	0.09	0.62	0.09
	Min.	0.57	0.07	8.9	7.9	<0.05	<0.05	<0.05	<0.04
	Max.	5.45	0.46	176	120	3.62	0.17	2.96	0.2
RA-42 Five Mile Ck	Mean	3.22	0.34	75	48	1.25	0.11	0.83	0.14
	Min.	0.88	0.04	8.3	6	<0.05	<0.05	<0.05	<0.04
	Max.	6.08	0.57	115	93	3.35	0.18	2.63	0.19
RA-43 Honey Ck	Mean	3.21	0.29	79	46	1.4	0.14	0.62	0.12
	Min.	0.99	0.14	3.7	5.2	<0.05	0.09	<0.05	<0.04
	Max.	7.8	0.34	534	273	4.48	0.18	2.68	0.2

The total phosphorus concentrations were also well in excess of the generalized stream eutrophy criterion at almost all sampling stations. Jackson Creek (RA-39), the South Fork of the Chariton River (RA-35), Five Mile Creek (RA-42), the Chariton River (RA-32), and Honey Creek (RA-40) had mean TP concentrations three to four times the criterion. Mean and maximum TP concentrations were RA-39, 0.41 mg/L and 0.61 mg/L; RA-35, 0.34 mg/L and 0.80 mg/L; RA-42, 0.34 mg/L and 0.57 mg/L; RA-32, 0.33 mg/L and 0.63 mg/L; and RA-40, 0.31 mg/L and 0.49 mg/L, respectively.

Four sampling stations in 2000 had mean annual atrazine concentrations above the 3 ug/L MCL. They included RA-38 (Walker Creek, 5.46ug/L), RA-37 (Jordan Creek, 3.86 ug/L), RA-32 (Chariton River, 3.72 ug/L), and RA-33 (Chariton River, 3.13 ug/L). While the remaining stations did not exceed the mean annual MCL, all but one had runoff associated maximums well in excess of the criterion. Only RA-40 (Honey Creek) did not have a maximum concentration in 2000 exceeding 3.00 ug/L.

Monthly herbicide levels over the last four sampling years are shown in Figures 1-14. While concentrations in excess of 40 ug/L were noted in the first three years, only a single station, RA-38 (Walker Branch), had an atrazine concentration in excess of 30 ug/L in 2000.

Compilations of all stream data, including physical, chemical, biological, and bacteriological parameters, are presented in the Appendix Tables 1-4. The data will be used by other agencies in the cooperative study and ultimately will be used by PM-PR-W in modeling studies.

Figure 1. South Fork Chariton River (RA-12) Atrazine Concentrations, 1997-2000

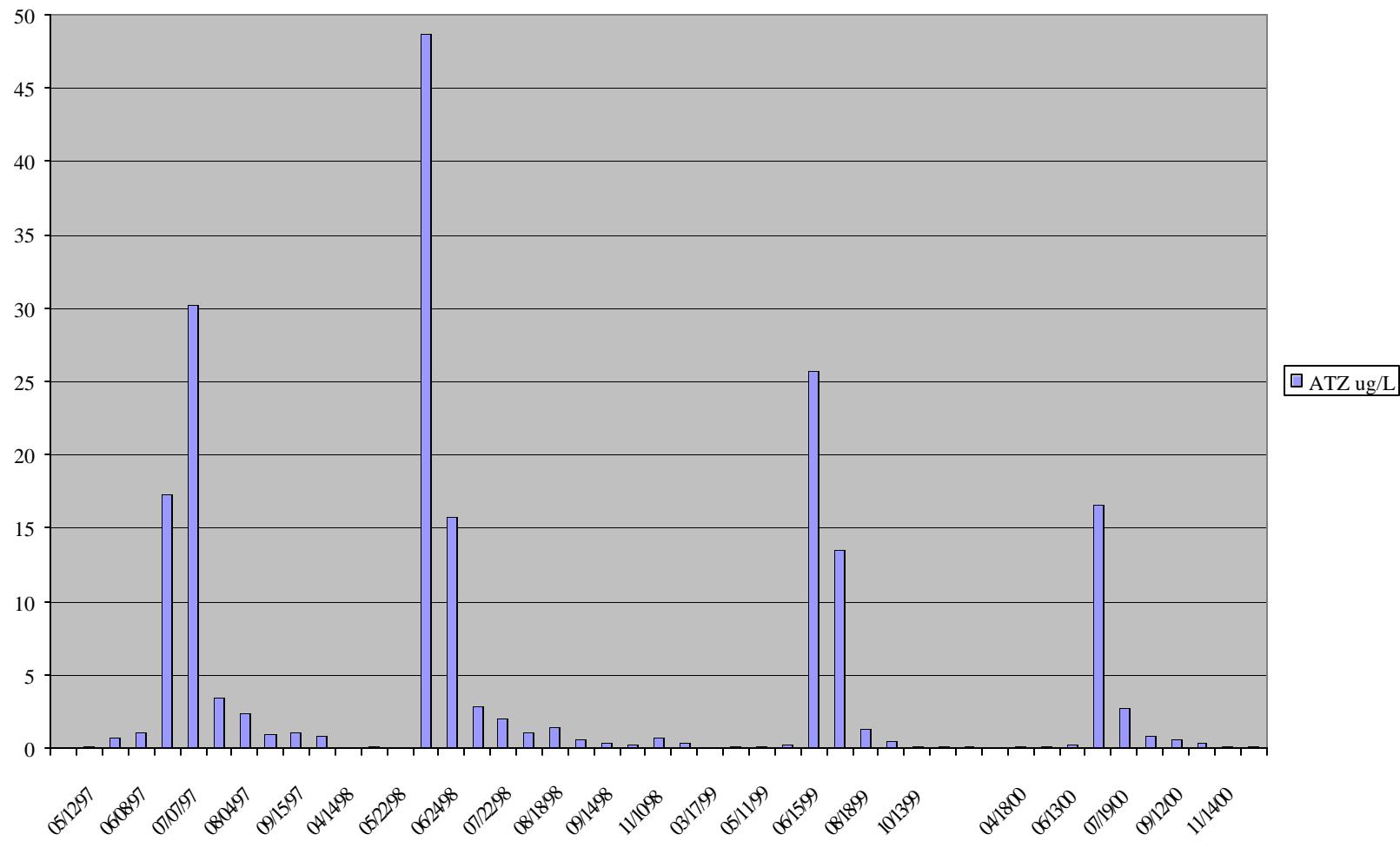


Figure 2. Chariton River (RA-15) Atrazine Concentrations, 1997-2000

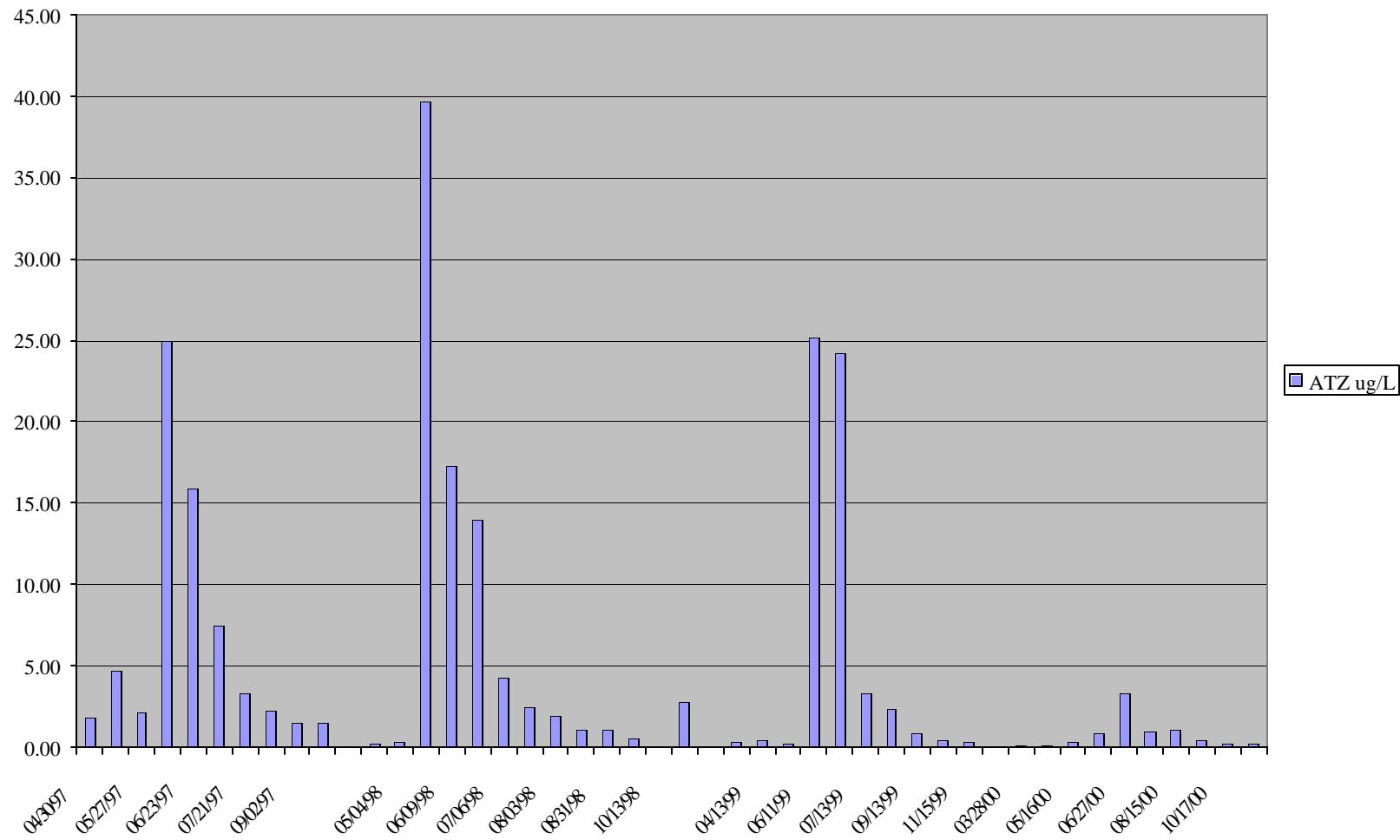


Figure 3. Chariton River (RA-32) Atrazine Concentrations, 1997-2000

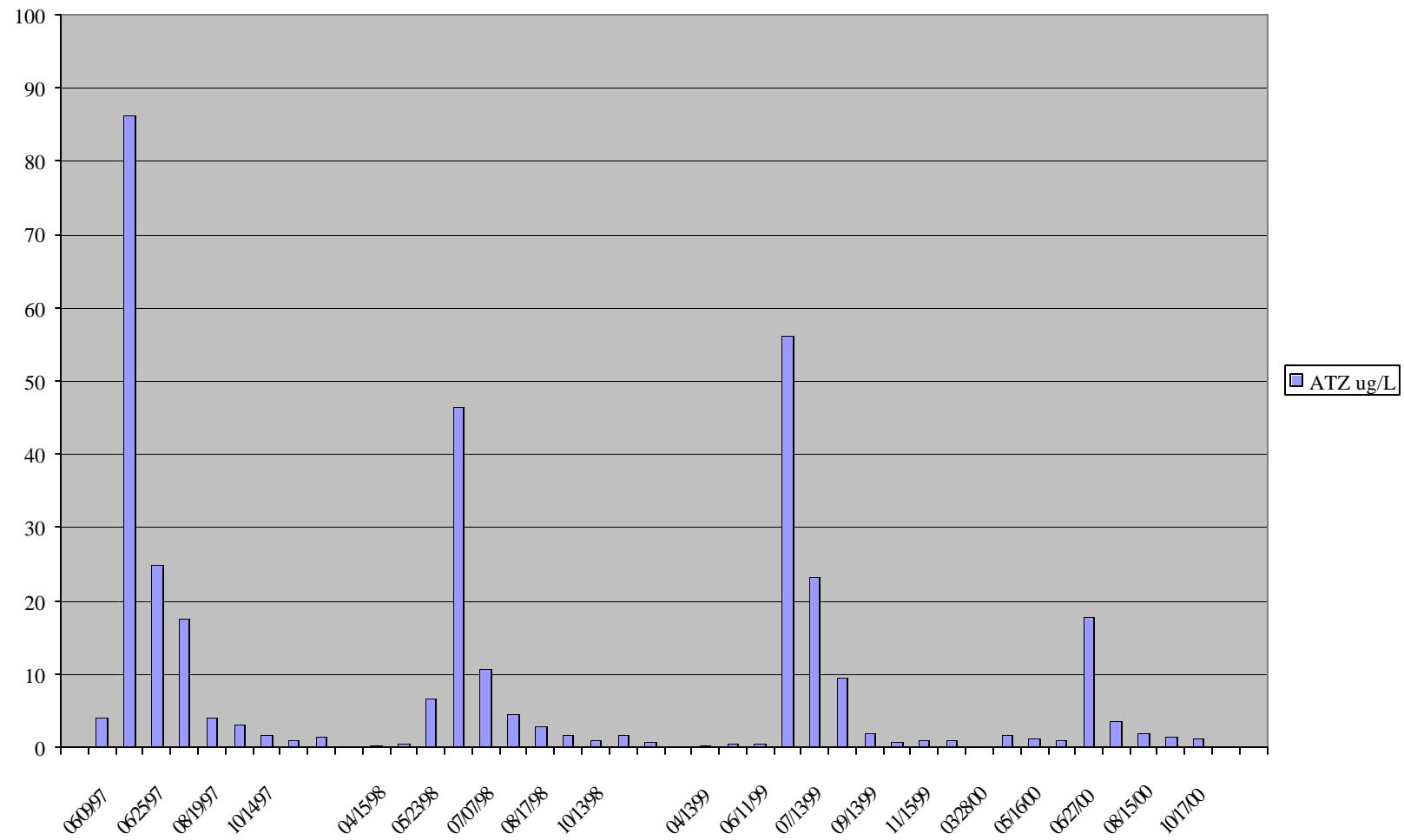


Figure 4. Chariton Ck (RA-33) Atrazine Concentrations, 1997-2000

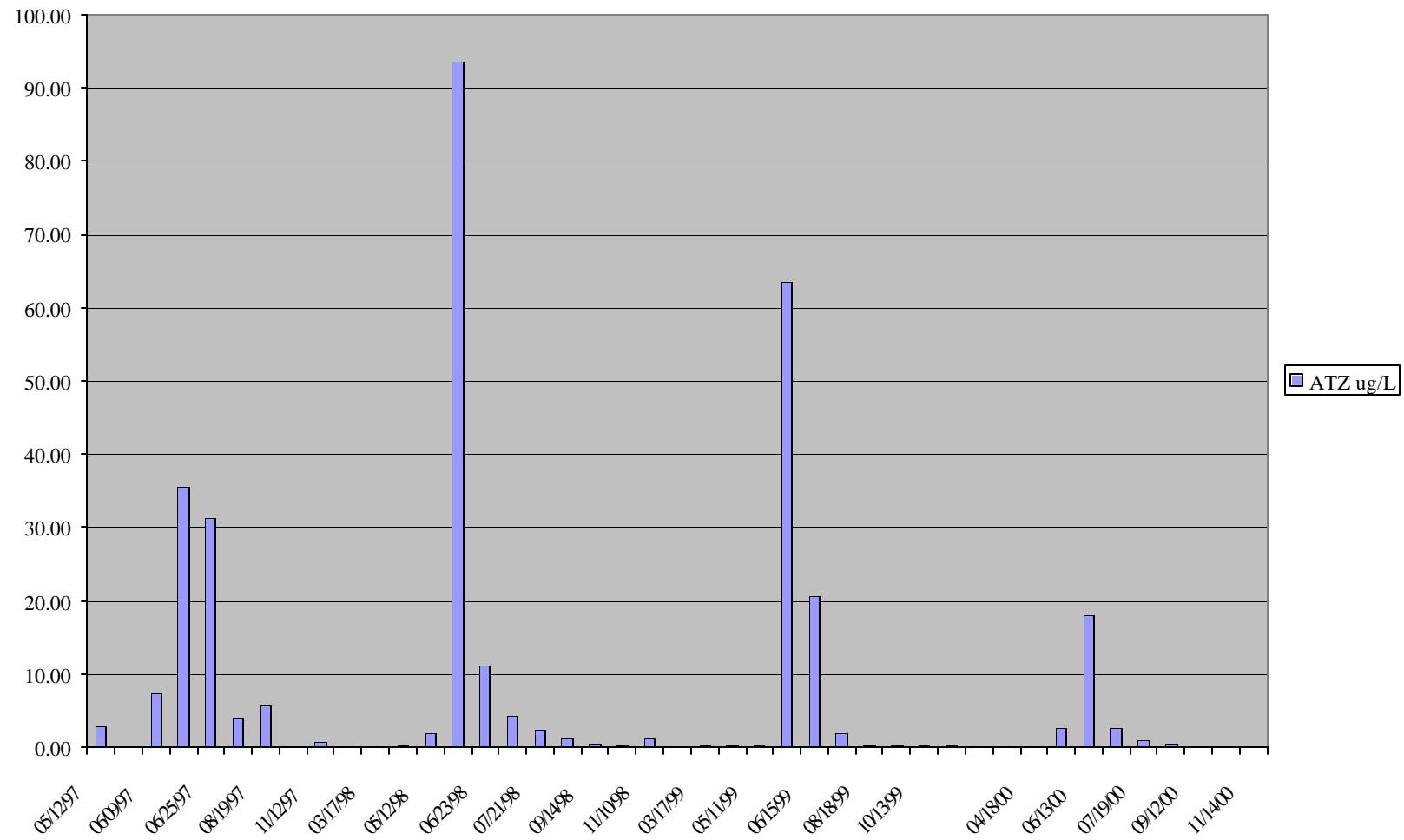


Figure 5. Unnamed Ck (RA-34) Atrazine Concentrations, 1997-2000

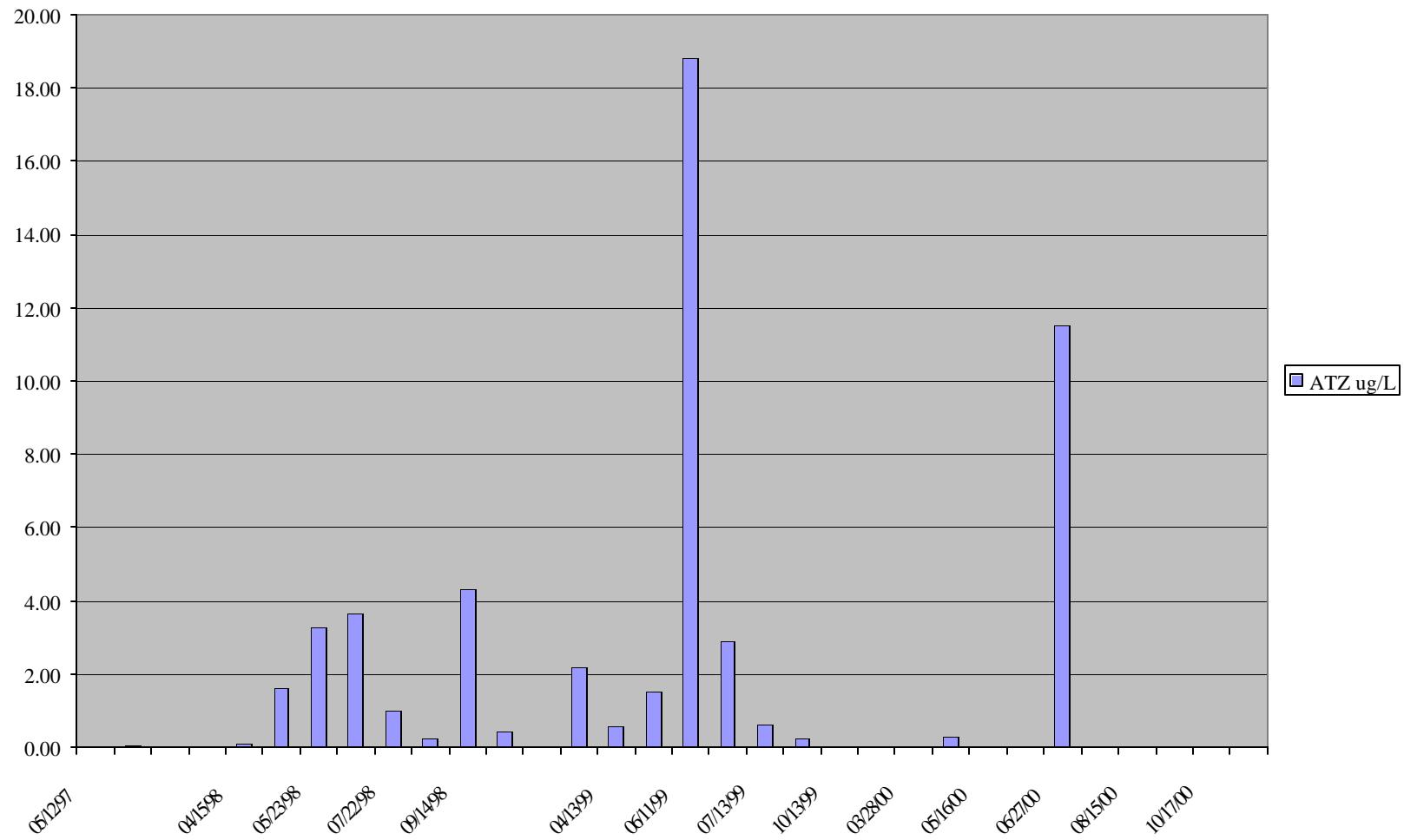


Figure 6. South Fork Chariton River (RA-35) Atrazine Concentrations, 1997-2000

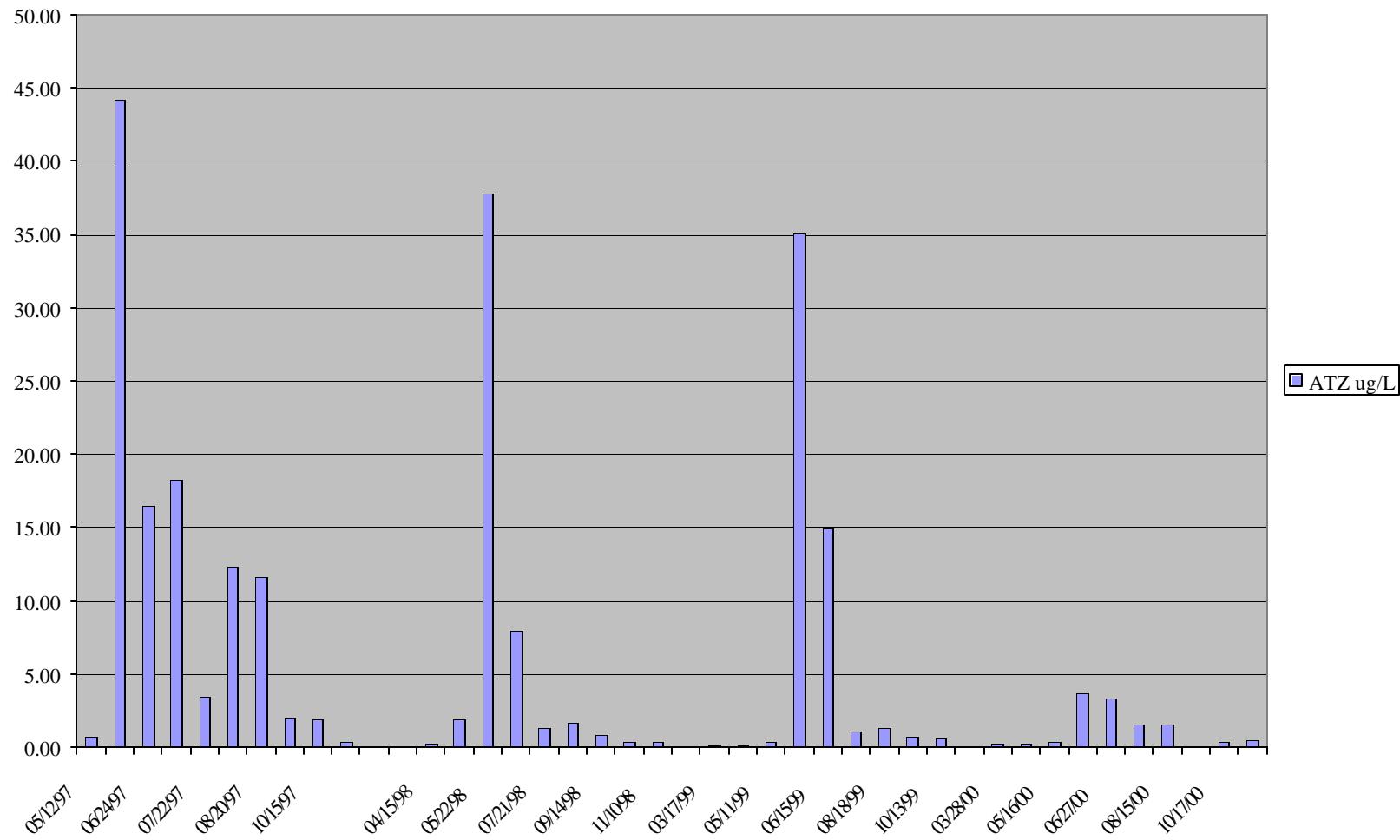


Figure 7. Nine Mile Ck (RA-36) Atrazine Concentrations, 1997-2000

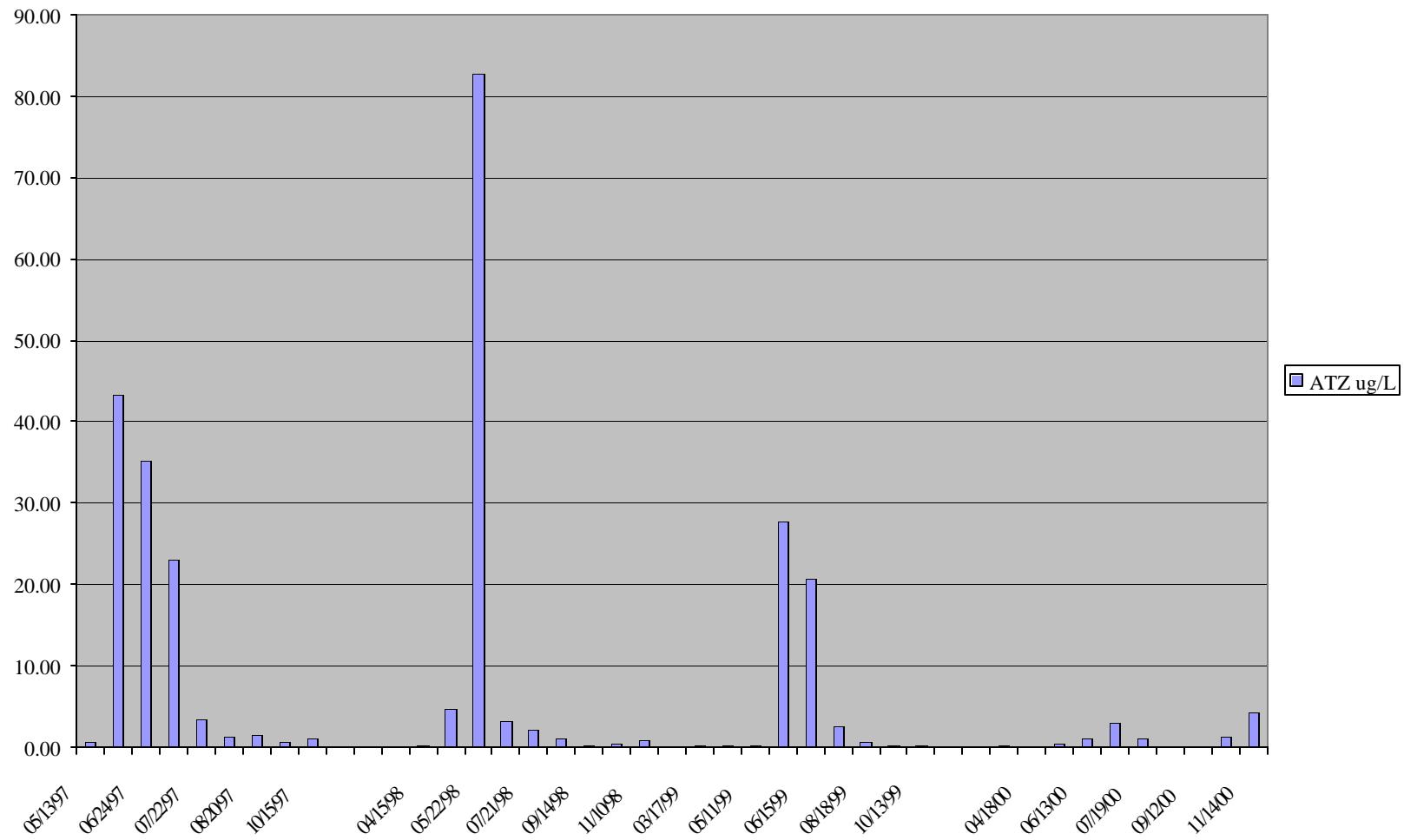


Figure 8. Jordan Ck (RA-37) Atrazine Concentrations, 1997-2000

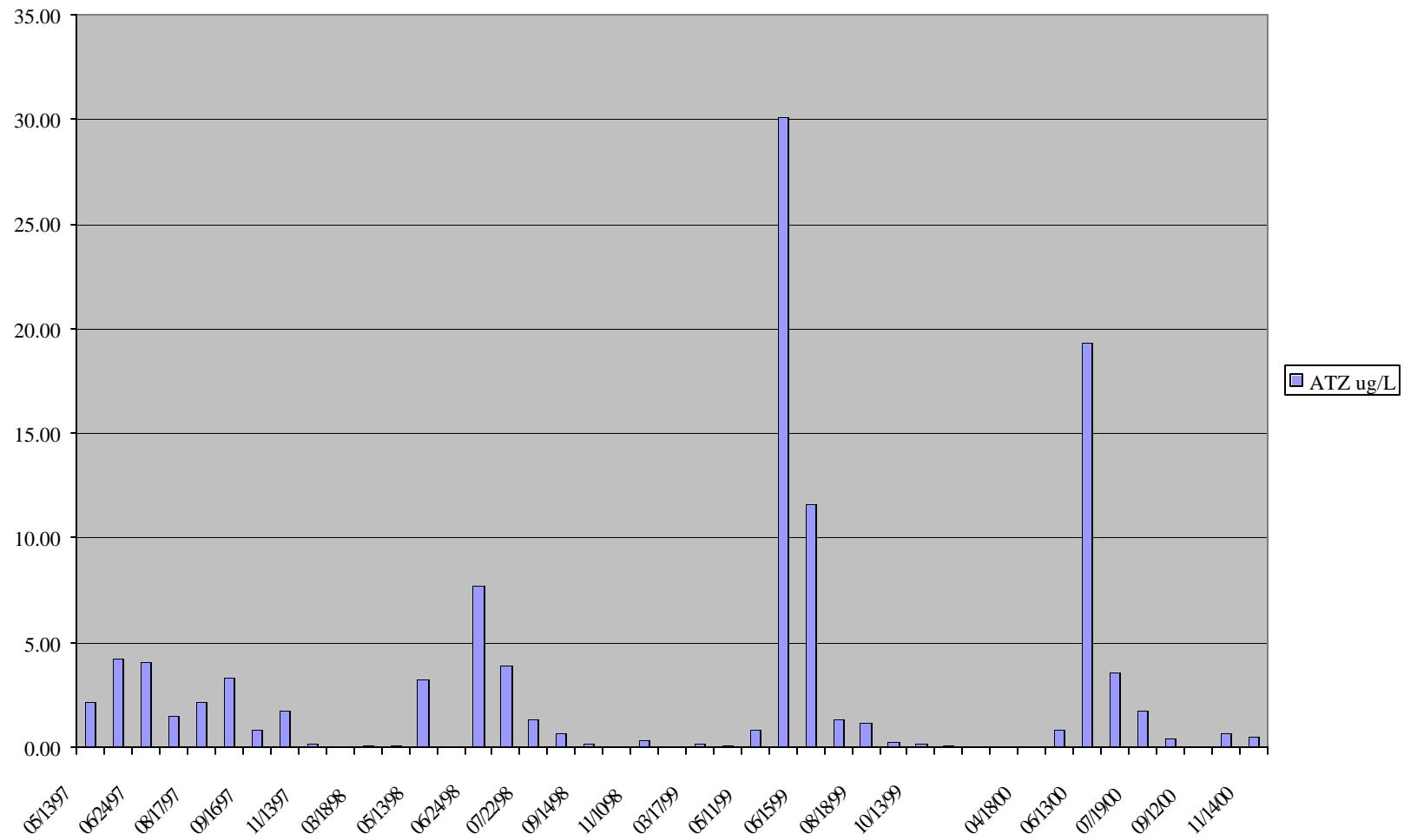


Figure 9. Walker Br (RA-38) Atrazine Concentrations, 1997-2000

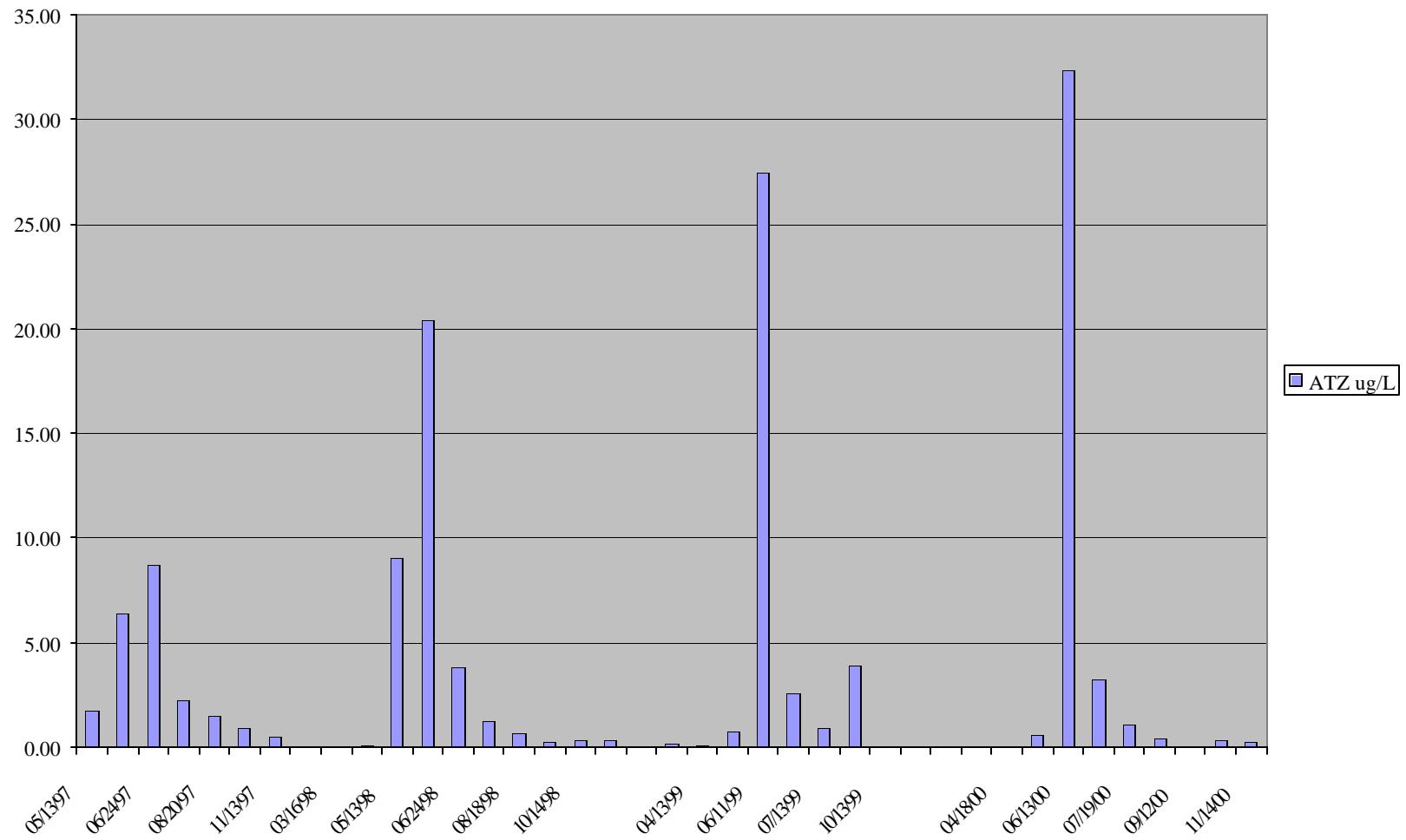


Figure 10. Jackson Ck (RA-39) Atrazine Concentrations, 1997-2000

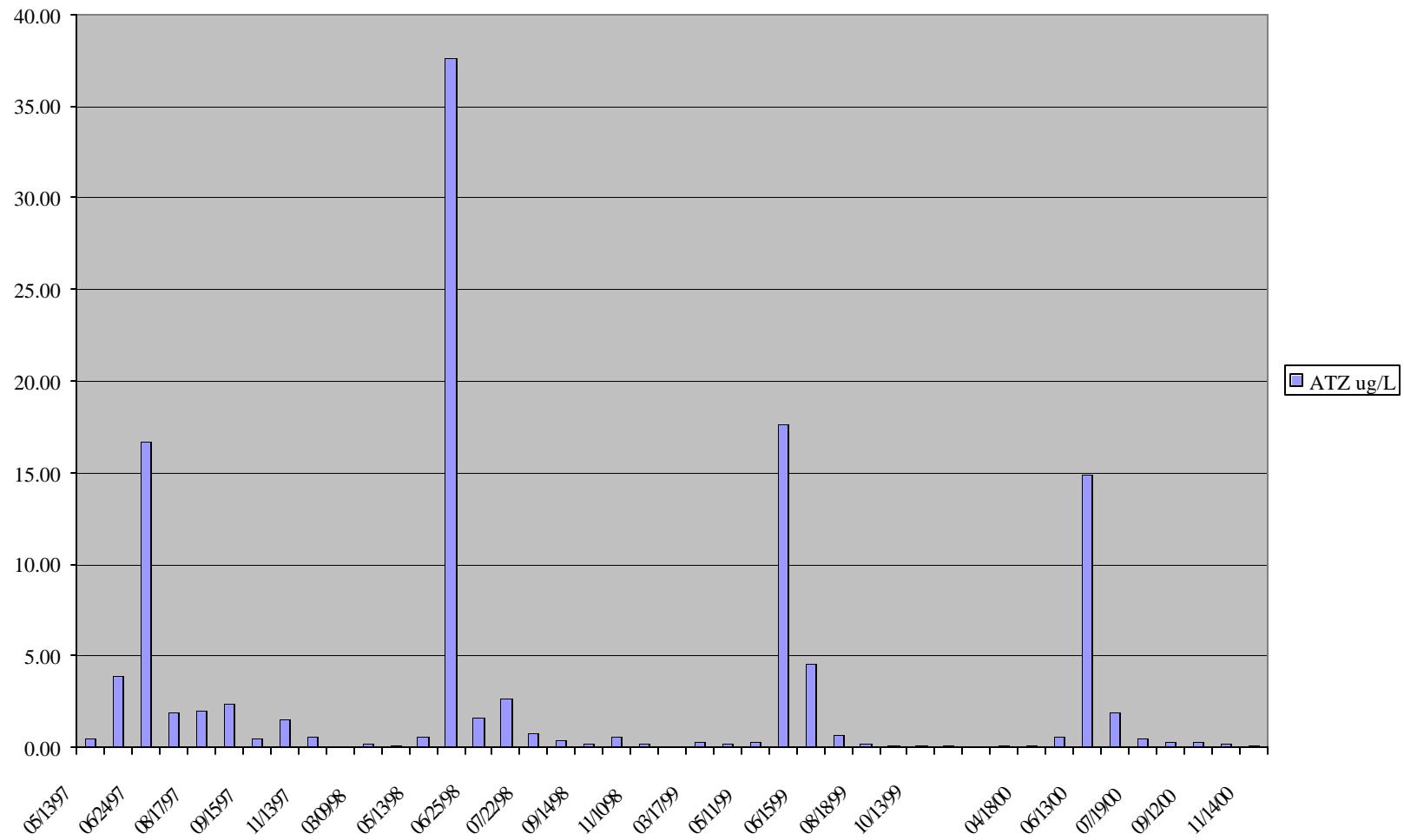


Figure 11. Honey Ck (RA-40) Atrazine Concentrations, 1997-2000

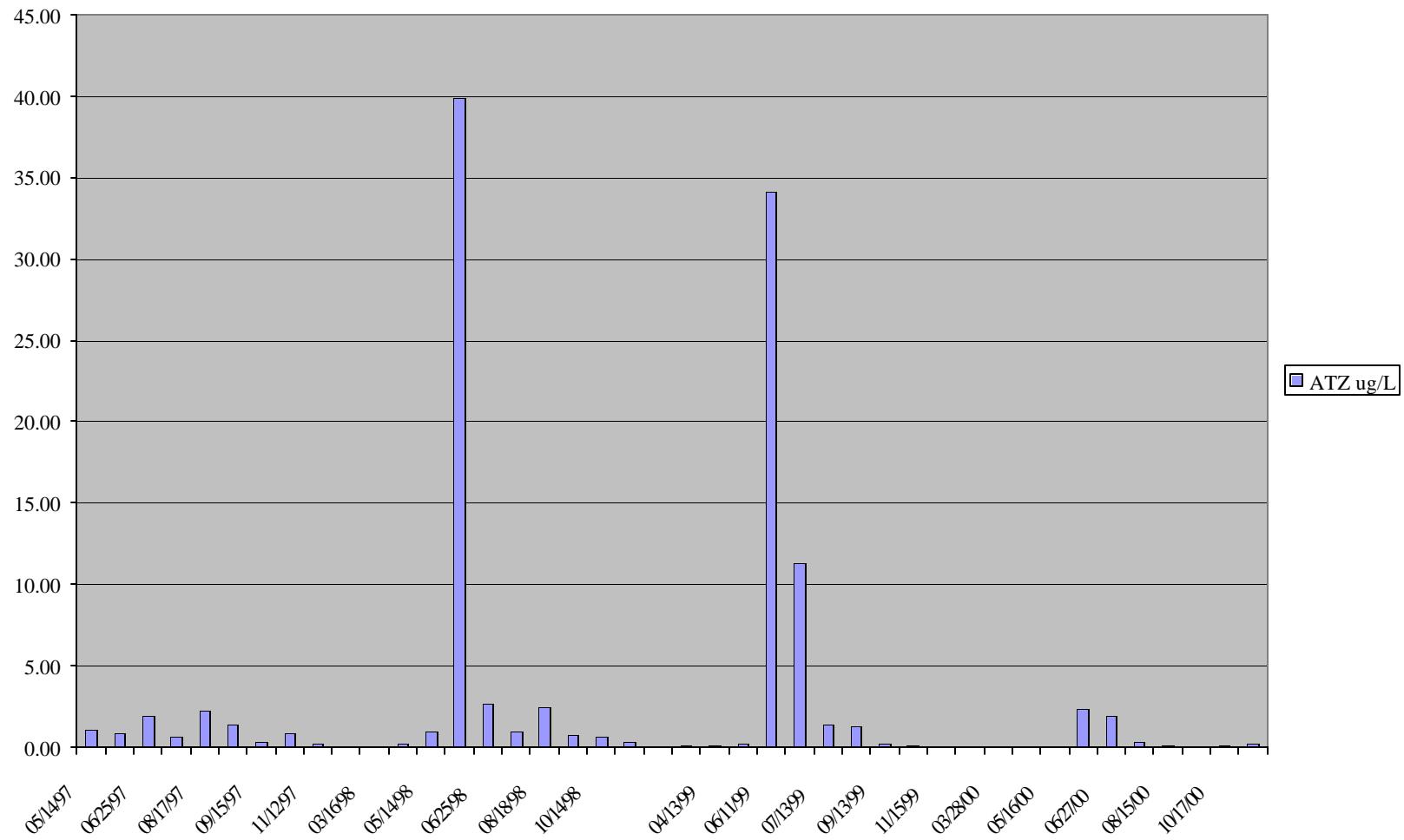


Figure 12. Wolf Ck (RA-41) Atrazine Concentrations, 1997-2000

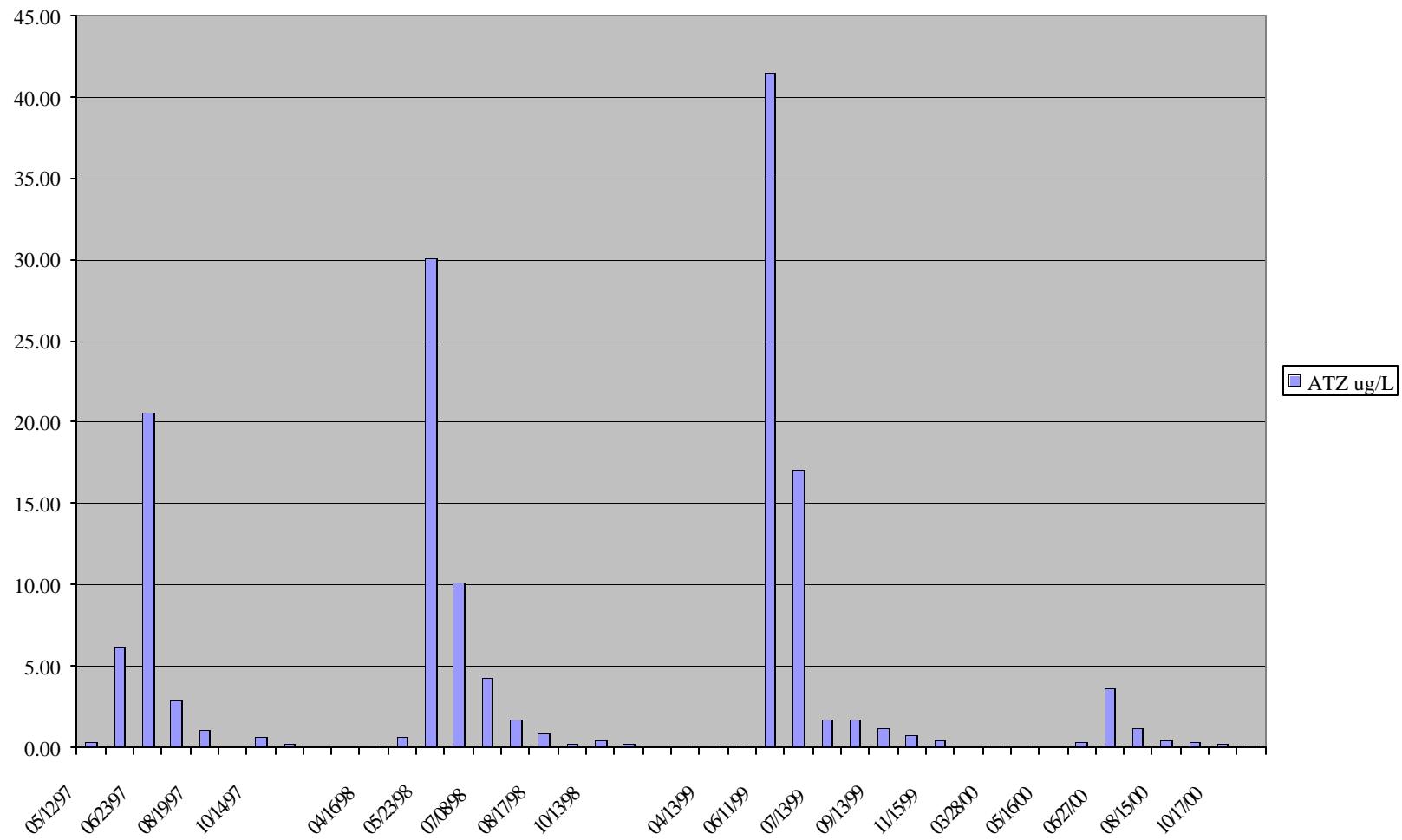


Figure 13. Five Mile Ck (RA-42) Atrazine Concentrations, 1997-2000

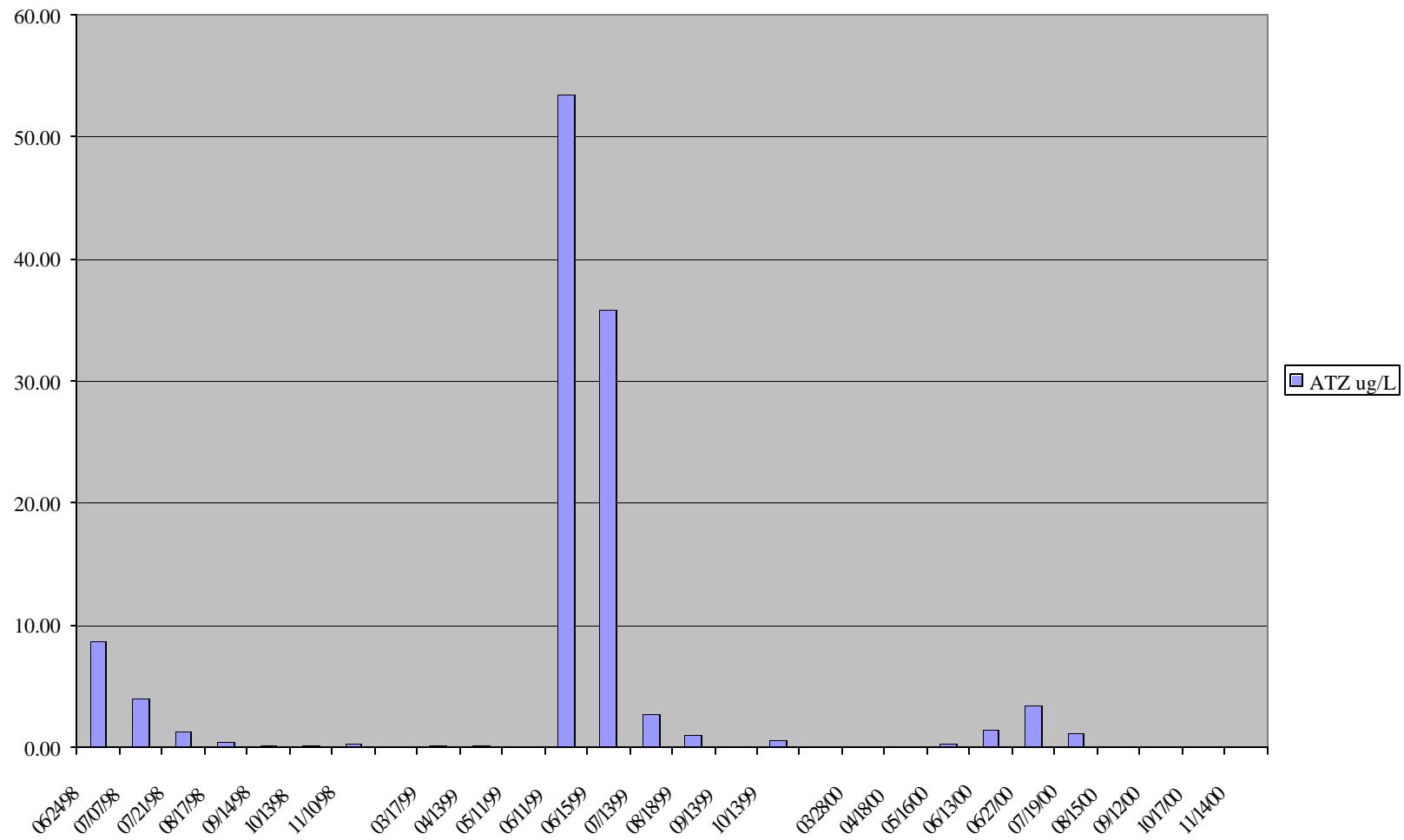
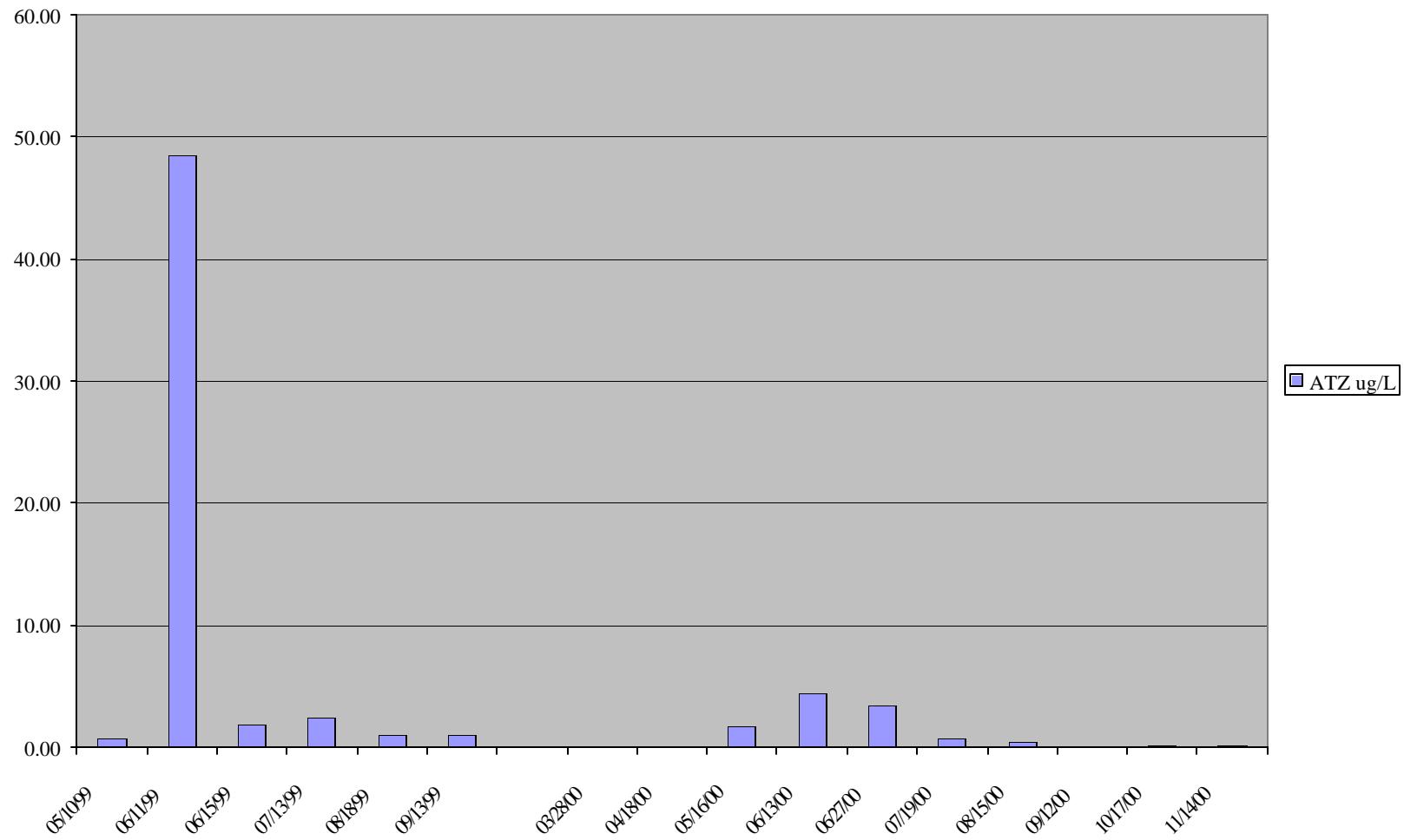


Figure 14. Honey Ck (RA-43) Atrazine Concentrations, 1997-2000



b. **Lake.** The eutrophic nature of Rathbun Lake has been well documented over the entire period of record. Nutrients, turbidity, and suspended solids are highest in the spring and early summer in association with storm-runoff storage. And, while gradual clearing occurs over the summer and fall, nutrient levels decrease only slightly in the water column (characterized by surface, mid-depth, and bottom sampling). Despite the high nutrient loading, reduced water clarity (turbidity) has been the major limiting factor in algal productivity. Since algal productivity is restricted to the upper strata of the water column, only surface concentrations will be presented here. However, the 1997-2000 data for all three depths plus elutriate and sediment data compiled for future computer modeling are presented in the Appendix Tables 5-11.

The reduced inflow in 2000 was reflected in the substantially lower mean annual TN concentration in the upper Chariton arm (RA-7). With the dry conditions, the mean was less than half the annual means for the three previous years. The 2000 mean, minimum, and maximum TN concentrations in surface waters were 0.76 mg/L, 0.60 mg/L, and 1.00 mg/L, respectively (Table 2). In contrast, the 2000 mean TP concentration in the upper Chariton arm was very similar to the 1997-1999 means. Total phosphorus concentrations for the seven sampling periods exceeded the generalized lake eutrophy criterion of 0.05 mg/L. Mean, minimum, and maximum TP concentrations in surface waters were 0.16 mg/L, 0.08 mg/L, and 0.38 mg/L, respectively.

The 2000 mean TN concentration in the upper South Fork arm (RA-8) was slightly lower than the mean annual concentrations for 1997-1999. As in the upper Chariton arm, the nitrogen level was presumably correlated with inflow, since discharge records for the upstream stations showed fewer runoff events and lower discharge rates in 2000. Mean, minimum, and maximum TN concentrations in surface waters of the South Fork arm were 1.23 mg/L, 0.90 mg/L, and 2.00 mg/L, respectively. The TP concentrations in this portion of Rathbun Lake also exceeded the generalized lake eutrophy criterion (0.05 mg/L). Mean, minimum, and maximum TP concentrations were 0.19 mg/L, 0.09 mg/L, and 0.27 mg/L, respectively.

As in previous years, the smaller Honey Creek arm (RA-25) had substantially lower nutrient concentrations than the larger, up-lake arms. The 2000 mean, minimum, and maximum TN concentrations were 0.58 mg/L, 0.22 mg/L, and 1.27 mg/L, respectively. The generalized eutrophy criterion for TP was exceeded in five of seven surveys. The mean, minimum, and maximum TP concentrations were 0.06 mg/L, 0.03 mg/L, and 0.1 mg/L, respectively.

In the down lake area near the dam (RA-3), TN concentrations have historically been lower presumably as a result of sedimentation and algal uptake in the up lake waters. The 2000 mean, minimum, and maximum TN concentrations were 0.51 mg/L, 0.27 mg/L, and 0.78 mg/L, respectively. The mean was substantially less than the mean concentrations for the three previous years. As in previous years, the TP concentrations in this portion of the lake were lower than the levels up lake, but they were still elevated, equaling or exceeding the eutrophy criterion in five of the seven surveys.

Table 2. Rathbun Lake 2000 Statistical Data for Surface Waters

STAT		TN mg/L	TP mg/L	TSS mg/L	TURB NTU	SECCHI m	PHOTIC m	CHLOR ug/L	ATZ ug/L	METO ug/L	CYAN ug/L	ALA ug/L
RA-3	Mean	0.51	0.07	12	14	0.83	2.04	3.4	0.83	0.74	0.09	0.09
Down Lake	Min.	0.27	0.02	5.2	5.5	0.46	1.22	0.8	0.47	0.59	<0.04	<0.05
	Max.	0.78	0.12	19	24	1.52	3.2	6.9	1.08	1.2	0.11	0.11
RA-7	Mean	0.76	0.16	27	29	0.4	0.97	12.7	1.02	0.72	0.11	0.04
Char. Arm	Min.	0.6	0.08	15	17	0.27	0.58	7	0.33	0.5	<0.04	<0.05
	Max.	1	0.38	42	47	0.61	1.22	31.9	1.83	1.13	0.13	0.09
RA-8	Mean	1.23	0.19	49	45	0.27	0.63	12.7	1.03	0.5	0.12	0.07
S. Fork Arm	Min.	0.9	0.09	24	24	0.15	0.46	6.3	0.3	0.25	<0.04	<0.05
	Max.	2	0.27	84	72	0.46	0.94	17	1.87	1.07	0.17	0.08
RA-25	Mean	0.58	0.06	9.7	12	0.82	1.95	5.8	0.9	0.72	0.1	0.02
Honey Ck Arm	Min.	0.22	0.03	6.9	9	0.43	1.77	2	0.6	0.41	<0.04	<0.05
	Max.	1.27	0.1	13	16	0.98	2.16	10.3	1.06	1.23	0.12	0.09
RA-28	Mean	0.84	0.11	26	27			0.8	0.8	0.78	0.08	0.12
Outlet	Min.	0.59	0.04	11	11			0.4	0.52	0.35	<0.04	<0.05
	Max.	1.25	0.19	51	50			1.5	0.98	1.56	0.1	0.19

The 2000 mean, minimum, and maximum TP concentrations in the down lake area were 0.07 mg/L, 0.02 mg/L, and 0.12 mg/L, respectively.

Herbicide concentrations in the lake were also generally lower in 2000 than in the previous three years. Higher concentrations were present up lake, but there were no substantial differences between surface and bottom depths, which is consistent with past years. Monthly scans of four commonly detected herbicides, atrazine, cyanazine, alachlor, and metolachlor, found 10 exceedences of the aquatic like criterion for atrazine (1 ug/L) in the surface waters of the lake, but no exceedences of a MCL or MCLG for drinking water supplies.

In the surface waters of the upper Chariton arm (RA-7), the aquatic life criterion for atrazine was exceeded from July-October. The 2000 mean, minimum, and maximum atrazine concentrations were 1.02 ug/L, 0.33 ug/L, and 1.83 ug/L, respectively. The mean, minimum, and maximum concentrations for the three other herbicides were cyanazine, 0.11 ug/L, <0.04 ug/L, and 0.13 ug/L; alachlor, 0.04 ug/L, <0.05 ug/L, and 0.09 ug/L; and metolachlor, 0.72 ug/L, 0.5 ug/L, and 1.13 ug/L, respectively.

The aquatic life criterion for atrazine was also exceeded in the surface waters of the upper South Fork arm during July-October 2000. The mean, minimum, and maximum atrazine concentrations were 1.03 ug/L, 0.3 ug/L, and 1.87 ug/L, respectively. As in previous years, the arm exhibited the highest observed concentrations in the lake. However, the 2000 concentrations were substantially lower than the 1998 concentrations (mean and maximum of 3.54 ug/L and 16.70 ug/L, respectively). Mean, minimum, and maximum concentrations for the other herbicides were cyanazine, 0.12 ug/L, <0.04 ug/L, and 0.17 ug/L; alachlor, 0.07 ug/L, <0.05 ug/L, and 0.08 ug/L; and metolachlor, 0.5 ug/L, 0.25 ug/L, and 1.07 ug/L, respectively.

In the Honey Creek arm (RA-25), the aquatic life criterion for atrazine was exceeded only in October 2000. The 1999 data also showed only one exceedence. The 2000 mean, minimum, and maximum atrazine concentrations in surface waters were 0.9 ug/L, 0.6 ug/L, and 1.06 ug/L, respectively. The mean, minimum, and maximum concentrations for the other herbicides were cyanazine, 0.1 ug/L, <0.04 ug/L, and 0.12 ug/L; alachlor, 0.02 ug/L, <0.05 ug/L, and 0.09 ug/L; and metolachlor, 0.72 ug/L, 0.41 ug/L, and 1.23 ug/L, respectively.

The down lake area (RA-3) had two exceedences of the aquatic life criterion for atrazine in 2000 (August and October). The mean annual atrazine concentrations have declined in each of the last four years. The 2000 mean, minimum, and maximum atrazine concentrations in surface waters were 0.83 ug/L, 0.47 ug/L, and 1.08 ug/L, respectively. The mean, minimum, and maximum concentrations for the remaining herbicides were cyanazine, 0.09 ug/L, <0.04 ug/L, and 0.11 ug/L; alachlor, 0.09 ug/L, <0.05 ug/L, and 0.11 ug/L; and metolachlor, 0.74 ug/L, 0.59 ug/L, and 1.2 ug/L, respectively.

A graphical presentation of atrazine concentrations in the lake over the last four years depicts substantially lower concentrations in the last two years (Figures 15-18). Additional years of data will determine whether the lower concentrations are the result of better land management or simply the result of reduced runoff in dry years.

Figure 15. Chariton Arm (RA-7) Atrazine Concentrations, 1997-2000

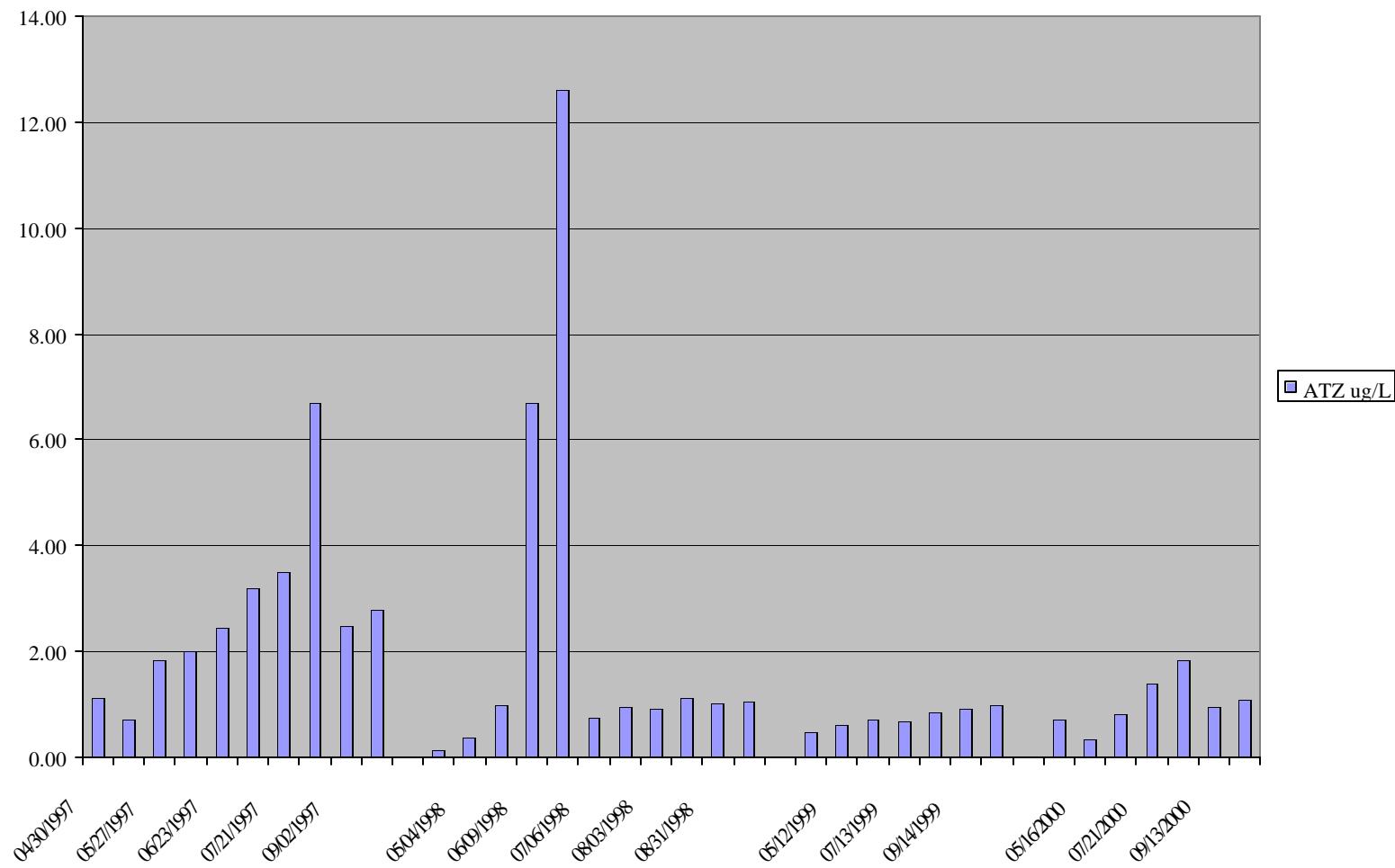


Figure 16. South Fork Chariton Arm (RA-8) Atrazine Concentrations, 1997-2000

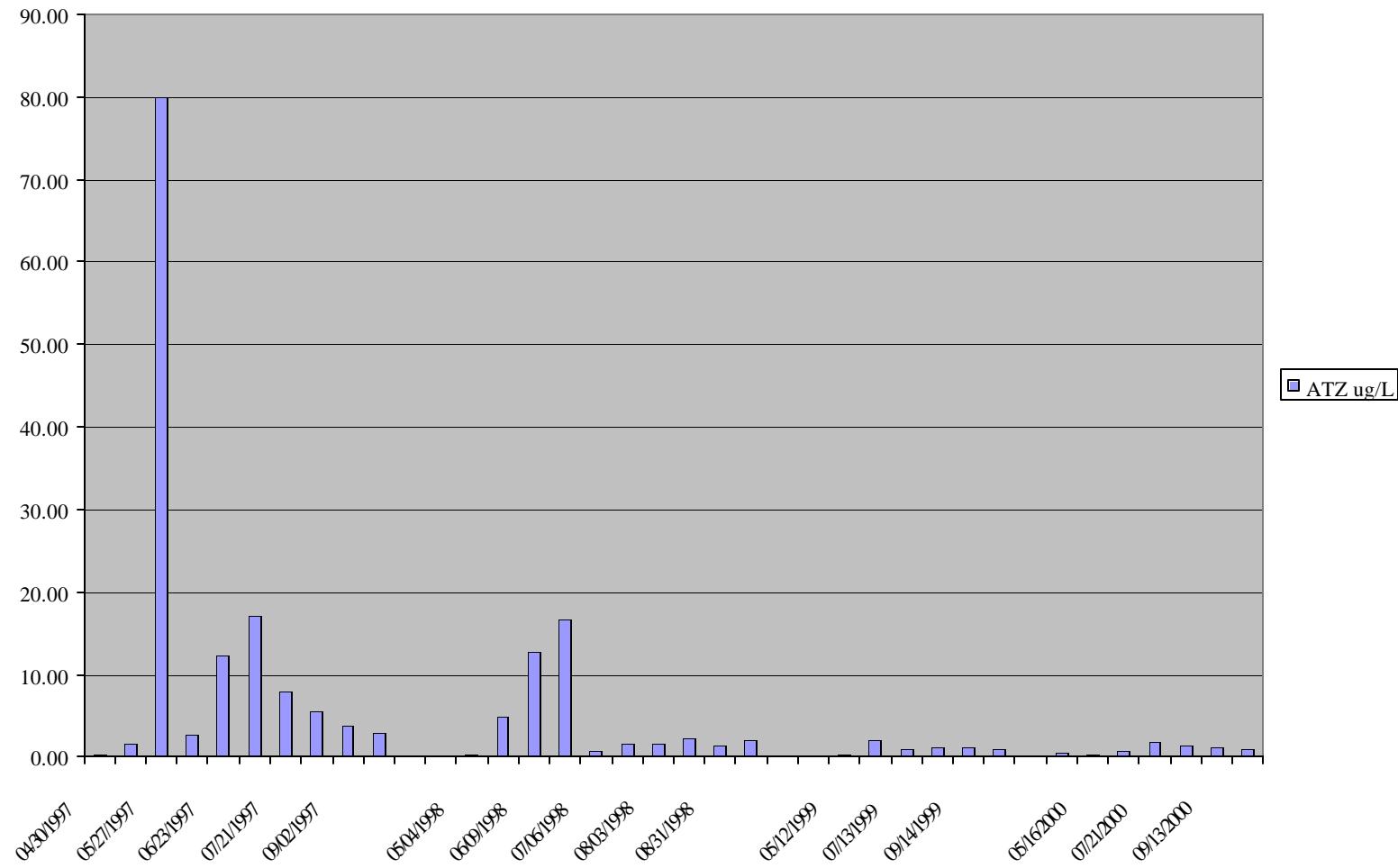


Figure 17. Honey Creek Arm (RA-25) Atrazine Concentrations, 1999-2000

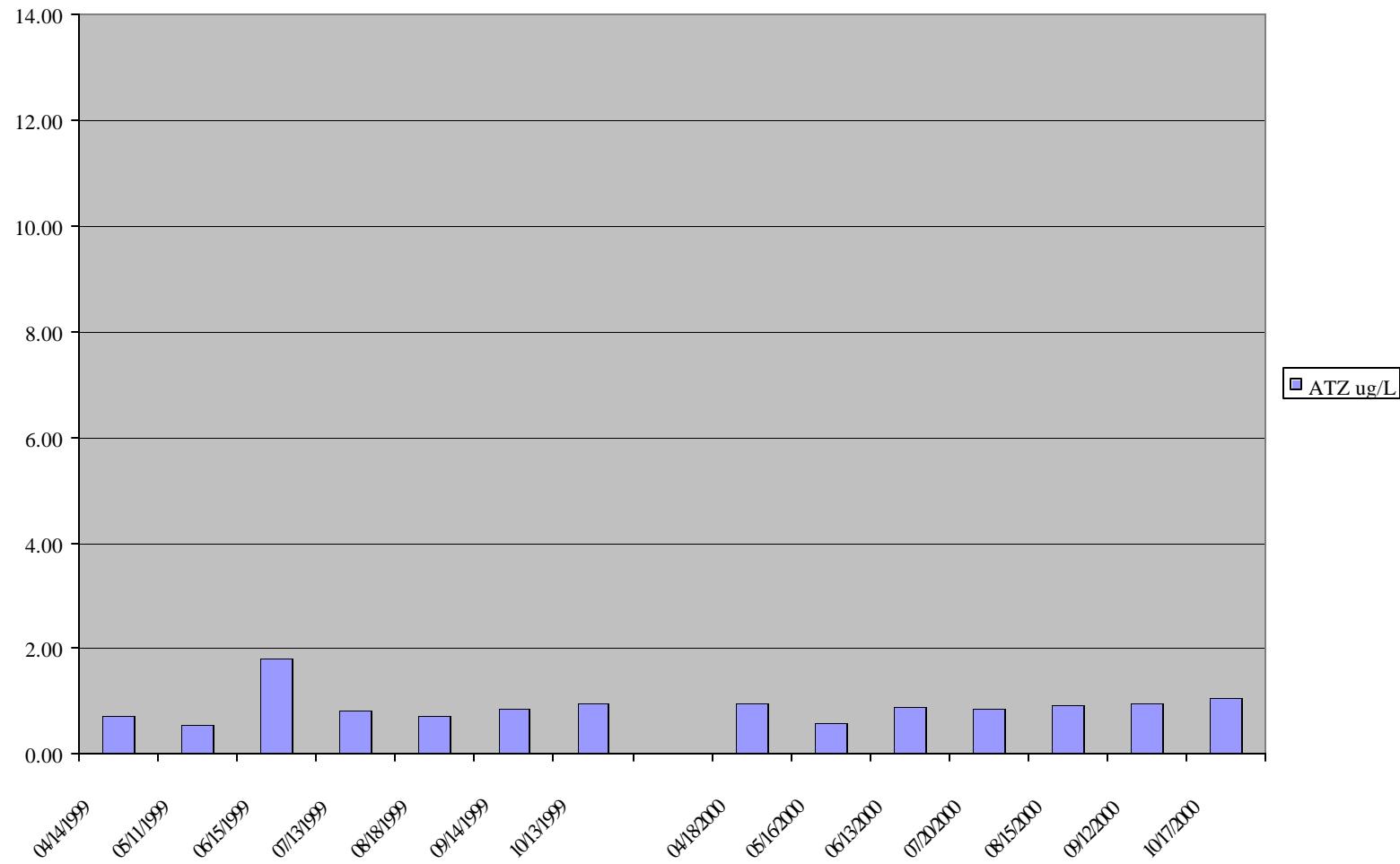
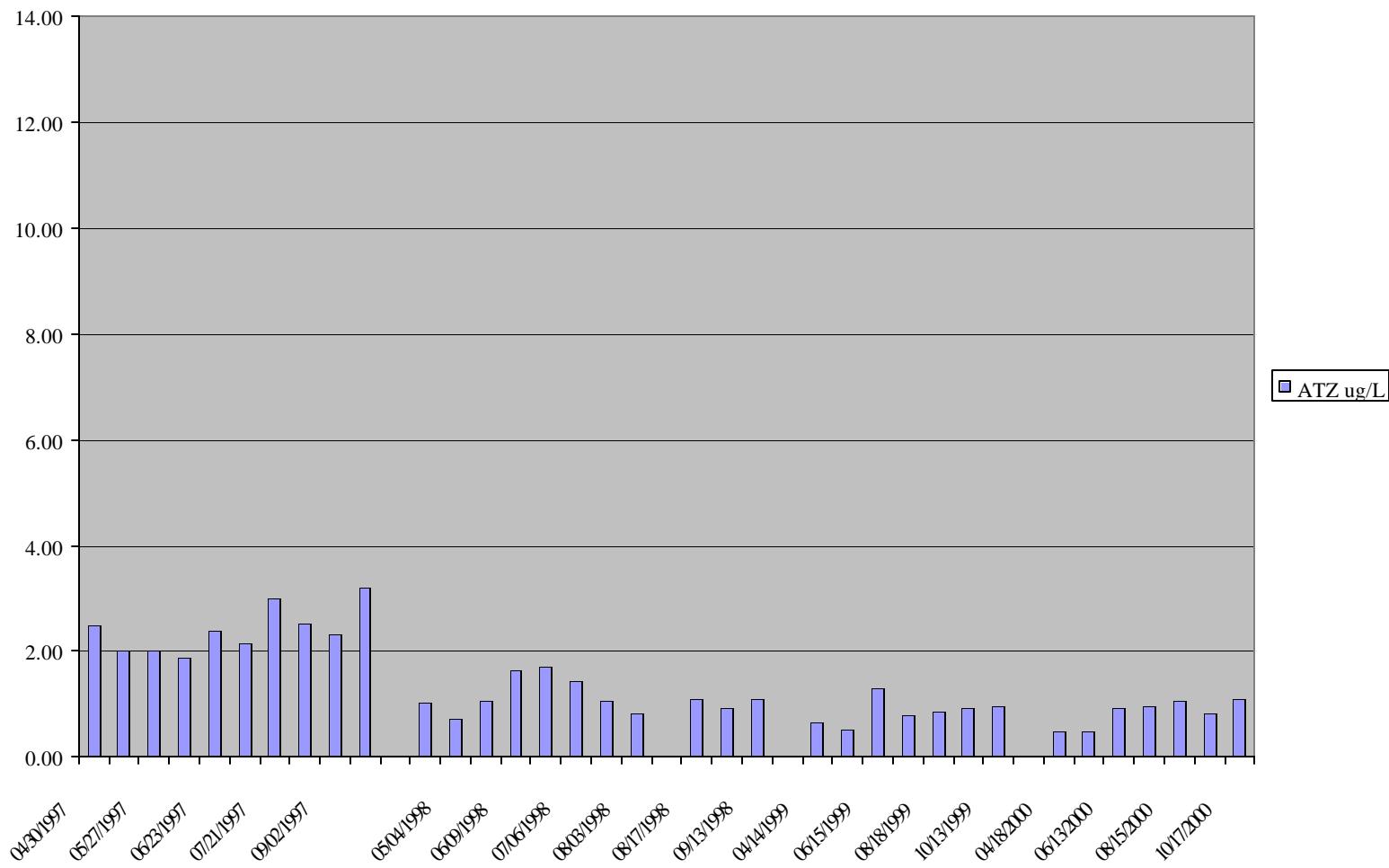


Figure 18. Down Lake (RA-3) Atrazine Concentrations, 1997-2000



Turbidity, total suspended solids (TSS), secchi depth, and photic zone depth during 2000 were indicative of reasonably good water clarity in the surface waters of the lake. Historically, turbidity has ranged from highly turbid to moderately turbid in the upper arms of the lake and from turbid to moderately clear in the down lake area. And within the water column, turbidity has been significantly higher in the bottom strata than in the upper strata as a result of sedimentation and gradual settling of suspended solids. Since the primary interest is on the algal response to surface water clarity, the following section will present only a statistical summary of the upper strata of the lake. As noted previously, a complete compilation of all parameters is presented in Appendix Tables 5-11.

As a result of the dry conditions and the reduced inflows in 2000, turbidity in the upper Chariton arm (RA-7) was substantially lower than in the previous 3 years. However, wind induced resuspension of sediment over the shallow flats presumably still played a part in reducing water clarity. The 2000 mean, minimum, and maximum surface turbidities were 29 NTU, 17 NTU, and 47 NTU, respectively. The corresponding TSS concentrations ranged from 15-42 mg/L with a mean of 27 mg/L. Secchi depths in the arm ranged from 0.27-0.61 m (mean, 0.4 m). The photic zone depth, which is the maximum depth utilized by algal populations, ranged from 0.58-1.22 m (mean, 0.97 m).

Even the South Fork arm (RA-8) exhibited slightly lower turbidities in 2000. The mean, minimum, and maximum turbidities were 45 NTU, 24 NTU, and 72 NTU, respectively. The corresponding TSS concentrations ranged from 24-84 mg/L with a mean of 49 mg/L. Secchi depths ranged from 0.15-0.46 m (mean, 0.27 m). The photic zone depth ranged from 0.46-0.94 m (mean, 0.63 m).

The Honey Creek arm (RA-25) with its smaller watershed continued to exhibit lower turbidities than the upper arms. The 2000 mean, minimum, and maximum turbidities in the surface waters were 12 NTU, 9 NTU, and 16 NTU, respectively. The corresponding TSS concentrations ranged from 6.9-13 mg/L with a mean of 9.7 mg/L. The higher water clarity resulted in secchi depths ranging from 0.43-0.98 m (mean, 0.82 m). The photic zone depths were substantially higher ranging from 1.77-2.16 m (mean, 1.95 m).

The down lake area (RA-3) exhibited moderately clear conditions during 2000. The mean, minimum, and maximum surface turbidities were 14 NTU, 5.5 NTU, and 24 NTU, respectively. Total suspended solids ranged from 5.2-19 mg/L with a mean of 12 mg/L. The secchi depths ranged from 0.46-1.52 m (mean, 0.83 m). The photic zone depths ranged from 1.22-3.2 m (mean, 2.04 m).

As previously noted, reduced algal productivity is associated with higher turbidities and TSS and the resulting lower transparencies (reflected by the secchi and photic depths). Light limitation during periods of storm runoff storage continues to be a major factor in the small algal standing crop or biomass in the upper portions of the lake. Chlorophyll concentrations, which are commonly used as an algal biomass indicator, fall below 3 ug/L during these periods, but increase substantially later in the year as water clarity improves. The 2000 mean, minimum, and maximum chlorophyll concentrations for the upper Chariton arm (RA-7) were 12.7 ug/L, 7 ug/L,

and 31.9 ug/L, respectively. Because of the improved water clarity in 2000, the mean annual concentration was slightly above the generalized eutrophy criterion for lakes (a mean growing season concentration of 10 ug/L).

The South Fork arm (RA-8) also exhibited slightly higher chlorophyll concentrations in response to the improved water clarity in the spring and early summer. The 2000 mean, minimum, and maximum chlorophyll concentrations were 12.7 ug/L, 6.3 ug/L, and 17 ug/L, respectively. Although the former is above the eutrophy criterion, it is not in a range which would be considered excessive or indicative of hypereutrophication.

Satisfactory water clarity coupled with lower nutrient levels produced moderate chlorophyll concentrations in the Honey Creek arm (RA-25). The 2000 mean, minimum, and maximum chlorophyll concentrations were 5.8 ug/L, 2.0 ug/L, and 10.3 ug/L, respectively.

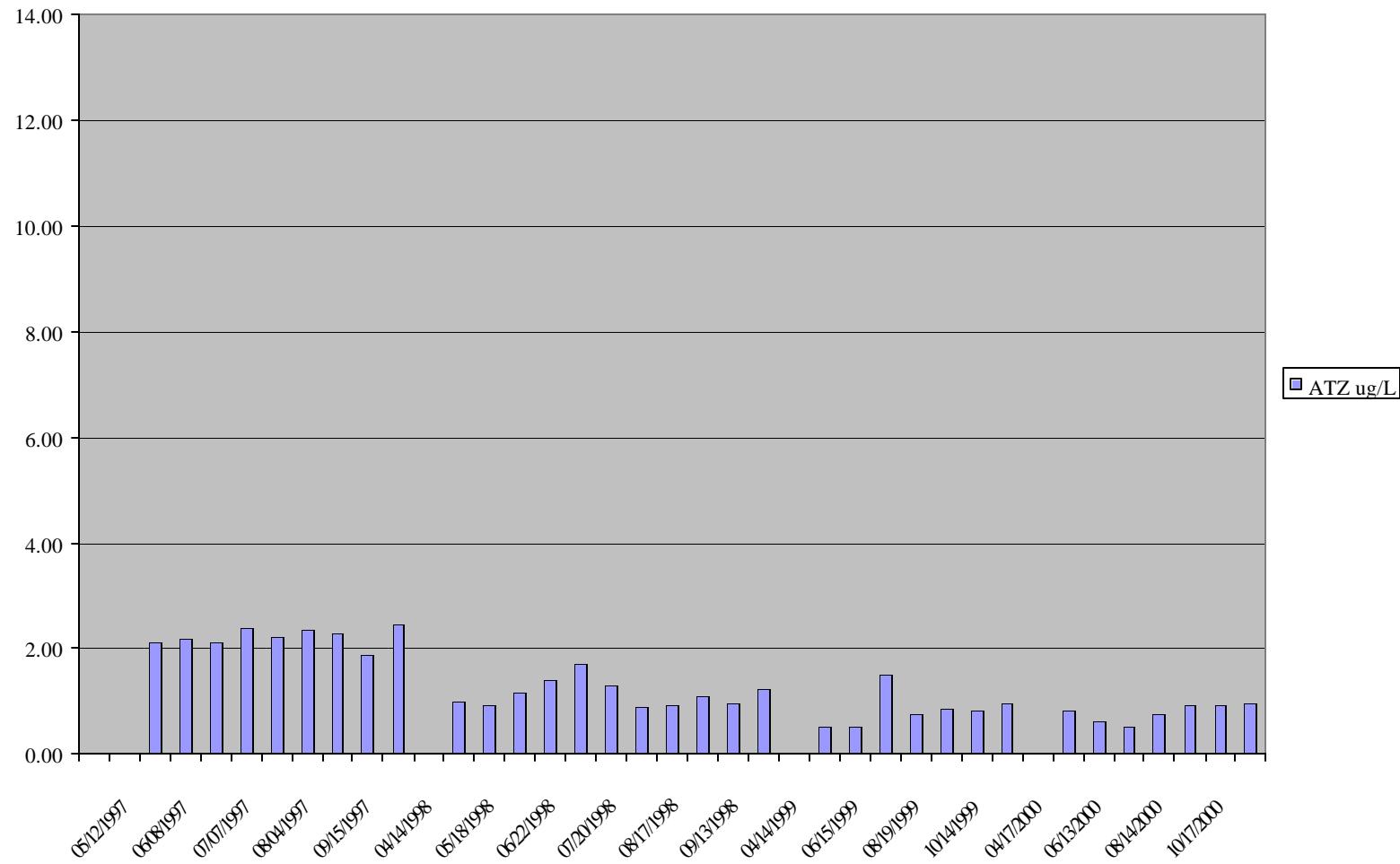
As in previous years, chlorophyll concentrations were fairly low in the down lake area (RA-3) in 2000. The mean, minimum, and maximum chlorophyll concentrations were 3.4 ug/L, 0.8 ug/L, and 6.9 ug/L, respectively. The condition is not unique, since lower concentrations have frequently been noted in the down lake areas of other District lakes. Upper arms and secondary arms with higher nutrient levels and clearing conditions typically have higher algal standing crops.

c. **Outflow.** As noted over the entire period of record, turbidity and suspended solids were substantially lower in the outlet area (RA-28) than in the inflows as a result of sedimentation in the lake. Mean, minimum, and maximum turbidities in 2000 were 27 NTU, 11 NTU, and 50 NTU, respectively. The associated suspended solids were similarly affected with mean, minimum, and maximum concentrations of 26 mg/L, 11 mg/L, and 51 mg/L, respectively.

Nutrient levels in the outlet were reduced also as a result of sedimentation and/or algal uptake upstream. The TN mean, minimum, and maximum concentrations were 0.84 mg/L, 0.59 mg/L, and 1.25 mg/L, respectively. Similarly, TP concentrations ranged from 0.04-0.19 mg/L with a mean of 0.11 mg/L. In three of the last four years, the means have been at or slightly above the stream eutrophy criterion of 0.1 mg/L.

The four commonly detected herbicides were again present in low concentrations in 2000. No MCLs or MCLGs were exceeded in the outflow. Atrazine mean, minimum, and maximum concentrations were 0.8 ug/L, 0.52 ug/L, and 0.98 ug/L, respectively. Mean atrazine concentrations have declined each of the last four years from a high of 2.23 ug/L in 1997 (Figure 19). The 2000 mean, minimum, and maximum concentrations for the remaining herbicides were metolachlor, 0.78 ug/L, 0.35 ug/L, and 1.56 ug/L; cyanazine, 0.08 ug/L, <0.04 ug/L, and 0.10 ug/L; and alachlor, 0.12 ug/L, <0.05 ug/L, and 0.19 ug/L, respectively.

Figure 19. Outlet (RA-28) Atrazine Concentrations, 1997-2000



4. Future Conditions.

The general water quality of Rathbun Lake is moderately good. The main problems in the dimictic reservoir are turbidity, significant suspended solids loading, high nutrient loading, high iron and manganese concentrations, hypolimnetic oxygen depletion during the summer, and pesticide loading during the spring and early summer. Monitoring over the entire period of record has shown that the pesticide levels pose a continuing threat to the drinking water supplies for the project and to the rural water districts without activated carbon filtration. The latter treatment significantly reduces these pollutants in the finished drinking water, but increases water treatment costs. If land use practices within the watershed do not change, i.e., agricultural practices do not include reductions in soil erosion and in herbicide and fertilizer runoff, the reservoir could potentially reach a point at which it is unable to assimilate the increased loading of silt, nutrients, and pesticides. Water supply, recreation, and sport fishery benefits would then be severely impaired or lost.

5. Recommendations.

The District should continue to strongly support the cooperative water quality monitoring and pollution abatement program for Rathbun Lake and its watershed. Because of the continuing concerns for suspended solids, nutrient, and pesticide loading and the potential for nonpoint pollution reduction through the cooperative effort, the PM-PR-W recommends the joint sampling program continue during March-November 2001.

Appendix Table 1. 2000 Chariton River Watershed Stream Ambient Data.

STAT	DATE mm/dd/yy	TIME hhmm	DEPTH m	TEMP °C	DO mg/L	COND u ohms	pH	ORP mV
RA-12	03/28/00		0.1	8.1	13.1	565	8.1	442
RA-12	04/18/00	1345	0.1	13.9	11.4	581	7.7	461
RA-12	05/16/00	1330	0.1	20.7	4.6	517	8.0	411
RA-12	06/13/00	1330	0.1	25.2	2.8	374	8.1	403
	06/27/00		0.1	21.2	1.8	245	8.3	403
RA-12	07/19/00	1400	0.1	21.6	12.8	382	8.0	
RA-12	08/15/00	1315	0.1	26.8	8.4	411	7.7	255
RA-12	09/12/00	1215	0.1	23.1	8.2	409	7.7	312
RA-12	10/17/00	1250	0.1	12.8	5.0	364	7.2	280
RA-12	11/14/00	1300	0.1	2.6	16.1	260	6.8	406
RA-15	03/28/00	0800	0.1	7.1	9.5	485	8.0	438
RA-15	04/18/00	0800	0.1	9.6	5.1	177	7.8	542
RA-15	05/16/00	0810	0.1	14.9	4.8	573	8.0	512
RA-15	06/13/00	0820	0.1	22.6	2.1	474	7.6	356
RA-15	06/27/00		0.1	20.4	1.9	131	7.3	522
RA-15	07/19/00	0835	0.1	20.3	8.2	349	7.4	
RA-15	08/15/00	0815	0.1	23.6	4.4	289	7.3	299
RA-15	09/12/00	0815	0.1	16.2	7.1	463	7.6	348
RA-15	10/17/00	0830	0.1	11.5	8.5	349	7.5	255
RA-15	11/14/00	835	0.1	1.7	10.9	212	5.8	403
RA-32	03/28/00	0945	0.1	3.1	11.0	495	7.8	398
RA-32	04/18/00	1000	0.1	9.5	5.9	535	8.2	469
RA-32	05/16/00	1000	0.1	15.5	5.2	502	8.9	404
RA-32	06/13/00	1000	0.1	23.6	2.8	100	7.8	394
RA-32	06/27/00	0945	0.1	19.9	2.4	211	7.4	487
RA-32	07/19/00	1030	0.1	20.2	8.9	320	7.5	
RA-32	08/15/00	0950	0.1	23.0	4.0	316	7.4	271
RA-32	09/12/00	0950	0.1	19.1	6.1	355	7.2	361
RA-32	10/17/00	DRY						
RA-32	11/14/00	DRY						
RA-33	03/28/00	1000	0.1	3.8	11.9	494	8.0	410
RA-33	04/18/00	1030	0.1	10.7	6.1	489	8.2	465
RA-33	05/16/00	1020	0.1	15.3	4.8	181	7.9	477
RA-33	06/13/00	1020	0.1	24.9	2.8	463	8.0	390
RA-33	06/27/00	1010	0.1	19.7	1.5	220	7.5	443
RA-33	07/19/00	1100	0.1	20.0	11.9	375	7.8	
RA-33	08/15/00	1015	0.1	23.2	7.9	167	7.8	252
RA-33	09/12/00	DRY						
RA-33	10/17/00	DRY						
RA-33	11/14/00	1010	0.1	1.3	15.5	189	6.4	431

STAT	DATE mm/dd/yy	TIME hhmm	DEPTH m	TEMP °C	DO mg/L	COND u ohms	pH	ORP mV
RA-34	03/28/00	DRY						
RA-34	04/18/00	1430	0.1	19.0	11.7	547	8.4	404
RA-34	05/16/00	DRY						
RA-34	06/13/00	DRY						
RA-34	06/27/00	1400	0.1	20.9	1.5	220	8.9	364
RA-34	07/19/00	DRY						
RA-34	08/15/00	DRY						
RA-34	09/12/00	DRY						
RA-34	10/17/00	DRY						
RA-34	11/14/00	DRY						
RA-35	03/28/00	1100	0.1	7.2	9.2	540	7.8	438
RA-35	04/18/00	1145	0.1	12.4	10.0	579	8.1	463
RA-35	05/16/00	1130	0.1	18.2	4.9	559	8.0	392
RA-35	06/13/00	1130	0.1	26.1	2.6	351	8.1	406
RA-35	06/27/00	1130	0.1	20.7	1.8	230	8.1	425
RA-35	07/19/00	1200	0.1	21.4	11.2	327	7.8	
RA-35	08/15/00	1110	0.1	24.7	7.2	262	7.8	254
RA-35	09/12/00	DRY						
RA-35	10/17/00	1050	0.1	11.7	7.0	343	7.4	330
RA-35	11/14/00	1115	0.1	2.3	14.6	156	6.5	432
RA-36	03/28/00	1040	0.1	9.5	10.8	521	8.0	429
RA-36	04/18/00	1115	0.1	14.7	8.4	488	7.8	474
RA-36	05/16/00	1100	0.1	19.8	4.6	522	7.9	397
RA-36	06/13/00	1145	0.1	26.0	2.6	157	8.0	401
RA-36	06/27/00	1100	0.1	20.1	1.8	229	8.1	431
RA-36	07/19/00	1130	0.1	21.1	12.0	329	7.7	
RA-36	08/15/00	DRY						
RA-36	09/12/00	DRY						
RA-36	10/17/00	1030	0.1	11.4	8.8	351	7.2	341
RA-36	11/14/00	1045	0.1	2.8	15.3	122	6.3	435
RA-37	03/28/00	1210	0.1	10.9	13.0	572	8.4	430
RA-37	04/18/00	1315	0.1	17.1	10.8	595	8.2	441
RA-37	05/16/00	1300	0.1	22.8	4.7	232	8.5	357
RA-37	06/13/00	1300	0.1	27.2	2.6	466	8.1	398
RA-37	06/27/00	1245	0.1	21.7	1.8	94	8.3	403
RA-37	07/19/00	1345	0.1	23.4	13.1	407	8.2	
RA-37	08/15/00	1300	0.1	27.4	9.4	311	7.9	255
RA-37	09/12/00	DRY						
RA-37	10/17/00	1225	0.1	13.4	7.5	298	7.3	150
RA-37	11/14/00	1230	0.1	3.0	16.3	239	6.6	421

STAT	DATE	TIME	DEPTH	TEMP	DO	COND	pH	ORP
	mm/dd/yy	hhmm	m	°C	mg/L	u ohms		mV
RA-38	03/28/00	1300	0.1	10.1	8.7	692	7.6	447
RA-38	04/18/00	1415	0.1	16.4	8.6	733	7.5	463
RA-38	05/16/00	1330	0.1	22.0	5.0	633	8.4	413
RA-38	06/13/00	1400	0.1	27.1	3.1	326	9.1	351
RA-38	06/27/00	1330	0.1	20.0	2.1	290	8.3	386
RA-38	07/19/00	1430	0.1	21.3	11.3	526	7.8	
RA-38	08/15/00	1345	0.1	27.5	8.1	354	7.7	251
RA-38	09/12/00							
RA-38	10/17/00	1320	0.1	13.0	7.8	444	7.2	280
RA-38	11/14/00	1320	0.1	2.7	16.5	350	6.8	408
RA-39	03/28/00	1145	0.1	9.4	13.6	788	8.2	431
RA-39	04/18/00	1245	0.1	15.2	9.7	691	7.9	498
RA-39	05/16/00	1230	0.1	19.2	4.4		7.3	505
RA-39	06/13/00	1230	0.1	24.1	2.8	323	8.2	408
RA-39	06/27/00	1205	0.1	20.2	2.0	229	8.3	411
RA-39	07/19/00	1300	0.1	20.3	11.4	376	7.9	
RA-39	08/15/00	1200	0.1	24.6	8.3	384	7.8	250
RA-39	09/12/00	1145	0.1	20.1	8.5	537	7.6	331
RA-39	10/17/00	1200	0.1	13.4	6.7	482	7.3	339
RA-39	11/14/00	1215	0.1	3.1	15.3	288	6.6	426
RA-40	03/28/00	1415	0.1	14.6	14.6	716	8.3	411
RA-40	04/18/00	1545	0.1	22.0	13.0	655	8.5	421
RA-40	05/16/00	DRY						
RA-40	06/13/00	1500	0.1	27.1	2.9	497	8.0	341
RA-40	06/27/00	1500	0.1	21.9	1.9	195	8.4	383
RA-40	07/19/00	1600	0.1	23.1	11.6	462	7.9	
RA-40	08/15/00	1430	0.1	25.9	4.7	325	7.5	254
RA-40	09/12/00	DRY						
RA-40	10/17/00	1545	0.1	13.5	5.2	549	7.2	326
RA-40	11/14/00	1420	0.1	2.5	18.1	354	7.1	372
RA-41	03/28/00	0845	0.1	6.2	8.4	531	7.9	374
RA-41	04/18/00	0840	0.1	9.5	6.2	538	7.9	495
RA-41	05/16/00	0850	0.1	15.4	4.5	567	7.6	485
RA-41	06/13/00	0850	0.1	23.6	2.6	503	8.1	432
RA-41	06/27/00	0900	0.1	19.7	2.0	220	7.5	499
RA-41	07/19/00	0920	0.1	20.3	8.9	348	7.5	
RA-41	08/15/00	0900	0.1	23.5	4.8	335	7.3	279
RA-41	09/12/00	0900	0.1	21.2	4.4	397	7.2	379
RA-41	10/17/00	0910	0.1	12.0	9.3	302	7.6	293
RA-41	11/14/00	910	0.1	0.7	11.1	247	6.3	421

STAT	DATE	TIME	DEPTH	TEMP	DO	COND	pH	ORP
	mm/dd/yy	hhmm	m	°C	mg/L	u ohms		mV
RA-42	03/28/00	0915	0.1	6.1	9.9	526	8.0	378
RA-42	04/18/00	0930	0.1	10.2	7.5	533	8.1	489
RA-42	05/16/00	0920	0.1	15.1	5.0		7.3	529
RA-42	06/13/00	0930	0.1	23.6	2.5	475	7.8	430
RA-42	06/27/00	0915	0.1	19.4	2.4	259	7.5	485
RA-42	07/19/00	1000	0.1	19.7	6.4	409	7.4	
RA-42	08/15/00	DRY						
RA-42	09/12/00	DRY						
RA-42	10/17/00	DRY						
RA-42	11/14/00	930	0.1	1.3	13.0	165	6.5	418
RA-43	03/28/00	1330	0.1	9.3	8.8	492	7.6	439
RA-43	04/18/00	1500	0.1	15.5	9.0	518	7.6	447
RA-43	05/16/00	1430	0.1	16.8	4.3	499	7.9	416
RA-43	06/13/00	1415	0.1	22.9	3.2	454	8.1	391
RA-43	06/27/00	1420	0.1	20.5	2.1	247	8.2	374
RA-43	07/19/00	1500	0.1	19.7	8.1	345	7.6	
RA-43	08/15/00	1400	0.1	23.8	5.2	403	7.6	245
RA-43	09/12/00	DRY						
RA-43	10/17/00	1350	0.1	12.3	7.7	348	6.8	339
RA-43	11/14/00	1345	0.1	2.7	18.8	267	7.3	341

Appendix Table 2. Chariton River Watershed Stream Data, 1997-2000.

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-12	0.1	04/30/97	1345	0.12	<0.05	0.09	<0.04		0.09	0.16	2.50	2.75	0.34		967.0	1363.0	
	0.1	05/12/97	1345	0.70	0.05	0.26	0.20		0.02	0.51	0.80	1.33	0.11		19.0	36.0	
	0.1	05/27/97	1530	1.04	0.11	3.75	0.57		0.09	0.08	1.10	1.27	0.21	0.07	55.0	79.0	
	0.1	06/08/97	1545	17.32	0.26	7.16	8.16		0.06	2.39	2.10	4.55	0.18	0.12	160.0	187.0	
	0.1	06/23/97	0830	30.20	1.24	10.15	8.30		0.30	6.00	4.30	10.60	0.86	0.28	1535.0	982.0	
	0.1	07/07/97	0900	3.42	0.08	0.85	0.96		0.08	0.07	0.40	0.55	0.22	0.06	16.0	22.0	
	0.1	07/21/97	0840	2.40	0.26	0.55	0.41		0.11	0.11	0.80	1.02	0.18	0.08	17.0	26.0	
	0.1	08/04/97	0840	0.95	0.08	0.22	0.74		0.04	0.06	0.40	0.50	0.45	0.06	28.0	42.0	
	0.1	09/02/97	1050	1.06	<0.05	0.29	0.22		0.05	0.12	1.20	1.37	0.16	0.08	16.0	22.0	
	0.1	09/15/97	1010	0.86	0.10	0.19	0.19		0.11	0.07	0.90	1.08	0.18	0.07	16.0	19.0	
Mean				5.81	0.27	2.35	2.19		0.10	0.96	1.45	2.50	0.29	0.10	282.90	277.80	
RA-12	0.1	04/14/98	1535	0.11	<0.05	0.28	0.05		0.10	0.43	1.40	1.93	0.20	0.10	220.0	265.0	
	0.1	05/04/98	1305	<0.05	<0.05	0.10	<0.04		0.02	0.04	0.60	0.66	0.14	0.04	12.0	18.0	
	0.1	05/22/98	1345	48.70	<0.05	<0.05	4.80		0.58	2.92	7.10	10.60	1.03	0.09		1920.0	
	0.1	06/09/98	1530	15.80	0.15	3.18	0.70		0.09	2.26	1.30	3.65	0.15	0.11	104.0	140.0	
	0.1	06/24/98	1430	2.88	0.12	0.79	0.26		0.11	0.72	1.40	2.23	0.22	0.06		400.0	
	0.1	07/06/98	0925	2.09	0.08	0.66	0.21		0.13	0.61	0.80	1.54	0.13	0.10	77.0	158.0	
	0.1	07/22/98	0951	1.12	0.11	0.39	0.14		0.04	0.09	0.60	0.73	0.08	0.07		24.0	
	0.1	08/03/98	1310	1.46	0.24	1.19	0.09		0.03	0.43	0.50	0.96	0.14	0.06	14.0	18.0	
	0.1	08/18/98	1000	0.57	0.07	0.17	0.04		<0.02	0.10	0.50	0.60	0.15	0.06		22.0	
	0.1	08/31/98	0900	0.36	0.05	0.09	<0.04		0.32	0.08	0.40	0.80	0.12	0.07	25.0	31.0	
	0.1	09/14/98	1637	0.23	<0.05	0.06	<0.04		0.11	0.49	1.10	1.70	0.76	0.27			
	0.1	10/14/98	1245	0.68	0.05	0.12	0.09		0.06	0.62	1.00	1.68	0.19	0.13			
	0.1	11/10/98	1210	0.37	<0.05	0.28	<0.04		0.22	1.16	2.00	3.38	0.49	0.23	450.0	658.0	
Mean				6.20	0.11	0.61	0.71		0.15	0.77	1.44	2.34	0.29	0.11	128.86	332.18	
RA-12	0.1	03/17/99	1245	0.18	<0.05	0.05	<0.04		0.10	2.81	1.90	4.81	0.90	0.07	330.0	785.0	
	0.1	04/13/99	1240	0.08	<0.05	<0.05	<0.04		0.04	0.56	0.33	0.93	0.12	0.06	19.0	25.0	
	0.1	05/11/99	1300	0.28	<0.05	0.09	<0.04		U	0.17	0.51	0.68	0.41	0.06	23.0	26.0	2.1
	0.1	06/11/99	1145	25.70	0.38	4.81	0.32		0.17	1.34	3.93	5.44	1.35	0.09	1206.0	1492.0	
	0.1	06/15/99	1145	13.50	0.22	2.86	0.16		0.02	0.78	1.03	1.83	0.26	0.07	96.0	109.0	
	0.1	07/13/99	1330	1.31	0.09	0.76	0.08		0.06	U	0.68	0.74	0.11	0.02	15.0	22.0	7.4
	0.1	08/18/99	1300	0.43	0.06	0.26	0.05		0.15	0.06	0.38	0.59	0.13	0.08	38.0	51.0	87.3
	0.1	09/13/99	1240	0.18	<0.05	0.20	<0.04		0.04	U	0.48	0.52	0.10	0.03	23.0	28.0	1.3
	0.1	10/13/99	1315	0.09	0.06	<0.05	<0.04		0.03	U	0.54	0.57	0.23	0.15	18.0	16.0	3.1
	0.1	11/15/99	1335	0.12	0.08	0.10	<0.04		U	U	0.20	0.20	0.10	0.09	7.8	2.6	0.0
Mean				4.19	0.15	1.14	0.15		0.08	0.95	1.00	1.63	0.37	0.07	177.58	255.66	16.87
RA-12	0.1	03/28/00	1230	0.10	<0.05	<0.05	<0.04		U	U	0.65	0.65	0.14	0.06	10.0	6.5	0.0
	0.1	04/18/00	1345	0.11	0.08	0.25	<0.04		U	U	0.73	0.73	0.11	0.04	13.0	13.0	0.5
	0.1	05/16/00	1330	0.23	<0.05	0.17	0.06		U	U	0.95	0.95	0.18	0.07	27.0	36.0	1.3
	0.1	06/13/00	1330	16.60	0.16	1.98	0.20		0.45	1.00	1.00	2.45	0.21	0.08	37.0	45.0	2.3
	0.1	06/27/00	1300	2.68	0.14	2.47	0.17		0.13	1.36	2.00	3.49	0.52	0.13	115.0	183.0	
	0.1	07/19/00	1400	0.86	0.05	0.34	0.09	0.23	0.03	0.10	1.16	1.29	0.27	U	44.0	86.0	1.3
	0.1	08/15/00	1315	0.59	<0.05	0.09	0.05	0.06	0.06	0.14	1.00	1.20	0.46	0.05	26.0	42.0	6.0

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-12	0.1	09/12/00	1215	0.33	0.05	0.05	0.05		U	U	0.60	0.60	0.10	0.03	15.0	15.0	3.1
	0.1	10/17/00	1250	0.16					U	U	0.40	0.40	0.20	0.10	18.0	13.0	8.6
	0.1	11/14/00	1300	0.16	<0.05	0.15	<0.04		0.06	0.33	1.10	1.49	0.23	0.11	25.0	16.0	0.8
Mean				2.18	0.10	0.69	0.10		0.15	0.59	0.96	1.33	0.24	0.07	33.00	45.55	2.66
RA-15	0.1	04/30/97	1445	1.86	0.17	0.17	0.16		0.18	1.06	1.80	3.04	0.25		169.0	292.0	
	0.1	05/12/97	1230	4.66	0.18	3.28	0.53		0.21	1.78	1.60	3.59	0.25		105.0	100.0	
	0.1	05/27/97	1615	2.18	0.24	4.84	1.33		0.12	0.07	1.20	1.39	0.23	0.10	53.0	64.0	
	0.1	06/08/97	1620	25.00	0.53	31.40	4.00		0.08	1.72	1.90	3.70	0.29	0.17	110.0	154.0	
	0.1	06/23/97	0915	15.90	1.27	14.10	6.55		0.18	0.81	1.60	2.59	0.24	0.11	124.0	179.0	
	0.1	07/07/97	0945	7.50	0.77	4.77	1.61		0.07	1.50	1.00	2.57	0.09	0.09	52.0	48.0	
	0.1	07/21/97	0915	3.33	0.71	3.71	1.05		0.08	0.14	1.20	1.42	0.10	0.08	74.0	80.0	
	0.1	08/04/97	0915	2.24	0.29	1.36	1.22		0.04	0.25	1.30	1.59	0.28	0.11	32.0	37.0	
	0.1	09/02/97	1140	1.46	<0.05	0.66	0.67		<0.02	0.05	1.20	1.25	0.31	0.11	15.0	14.0	
	0.1	09/15/97	1050	1.52	0.14	0.54	0.48		0.17	0.24	1.00	1.41	0.16	0.09	15.0	17.0	
Mean				6.57	0.48	6.48	1.76		0.13	0.76	1.38	2.26	0.22	0.11	74.90	98.50	
RA-15	0.1	04/14/98	1620	0.17	0.05	0.23	0.10		0.12	0.63	1.20	1.95	0.13	0.10	100.0	92.0	
	0.1	05/04/98	1345	0.29	<0.05	0.31	0.28		0.02	0.03	0.40	0.45	0.09	0.06	41.0	61.0	
	0.1	05/22/98	1515	39.70	0.68	14.50	1.85		0.46	2.79	5.40	8.65	0.82	0.10			
	0.1	06/09/98	1615	17.30	0.19	2.95	0.82		0.12	1.39	1.60	3.11	0.15	0.11	148.0	145.0	
	0.1	06/23/98	0935	14.00	0.31	2.68	1.36		0.12	1.13	1.60	2.85	0.14	0.10			
	0.1	07/06/98	1000	4.27	0.39	3.97	0.44		0.10	1.24	0.80	2.14	0.18	0.14	96.0	105.0	
	0.1	07/21/98	0930	2.44	0.11	1.04	0.37		0.10	0.28	1.10	1.48	0.24	0.08			
	0.1	08/03/98	1400	1.91	0.22	0.74	0.26		<0.02	0.03	0.70	0.73	0.18	0.06	12.0	12.0	
	0.1	08/17/98	0930	1.11	<0.05	0.20	0.15		0.03	0.03	1.60	1.66	0.35	0.05			
	0.1	08/31/98	0910	1.08	0.15	0.30	0.17		0.09	0.10	0.40	0.59	0.11	0.09	15.0	15.0	
	0.1	09/15/98	0940	0.54	0.09	0.10	0.06		0.08	0.24	1.10	1.42	0.16	0.10			
	0.1	10/13/98	0945						0.24	0.76	1.00	2.00	0.36	0.17			
	0.1	11/10/98	0830	2.81	<0.05	0.17	0.11		0.58	1.29	1.30	3.17	0.53	0.29	145.0	228.0	
Mean				7.14	0.24	2.27	0.50		0.17	0.76	1.40	2.32	0.26	0.11	79.57	94.00	
RA-15	0.1	03/17/99	0745	0.29	<0.05	0.14	0.05		0.22	2.86	1.73	4.81	0.98	0.13	380.0	685.0	
	0.1	04/13/99	0800	0.44	0.08	0.19	0.11		0.25	4.02	1.48	5.75	0.40	0.18	107.0	118.0	
	0.1	05/11/99	0800	0.17	0.05	0.20	0.04		U	0.43	1.15	1.58	0.51	0.05	65.0	92.0	48.0
	0.1	06/11/99	0735	25.20	0.18	4.01	0.37		0.20	2.02	3.96	6.18	1.18	0.11	870.0	1219.0	
	0.1	06/15/99	0800	24.20	0.28	9.20	1.42		0.10	1.13	2.55	3.78	0.67	0.11	395.0	444.0	
	0.1	07/13/99	0840	3.33	0.14	2.48	0.54		0.15	1.23	1.38	2.76	0.26	0.06	93.0	102.0	3.2
	0.1	08/18/99	0830	2.38	0.10	0.57	0.25		0.06	0.42	0.53	1.01	0.20	0.15	49.0	61.0	5.5
	0.1	09/13/99	0800	0.84	0.10	0.29	0.10		0.02	U	0.72	0.74	0.11	0.05	36.0	104.0	1.5
	0.1	10/13/99	0830	0.41	0.15	0.18	0.19		0.02	U	0.76	0.78	0.17	0.09	29.0	41.0	3.3
	0.1	11/15/99	0835	0.30	0.17	0.25	<0.04		U	U	0.80	0.80	0.29	0.21	21.0	21.0	3.1
Mean				5.76	0.14	1.75	0.34		0.13	1.73	1.51	2.82	0.48	0.11	204.50	288.70	10.77
RA-15	0.1	03/28/00	0800	0.14	0.09	<0.05	<0.04		U	U	0.78	0.78	0.14	0.05	6.7	7.0	3.6
	0.1	04/18/00	0800	0.07	0.13	0.07	<0.04		U	U	0.78	0.78	0.16	0.07	13.0	17.0	0.3
	0.1	05/16/00	0810	0.33	0.09	0.26	<0.04		U	U	0.99	0.99	0.28	0.17	13.0	35.0	0.2
	0.1	06/13/00	0820	0.90	0.08	0.17	0.04		0.58	U	1.00	1.58	0.26	0.15	18.0	29.0	1.9

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-15	0.1	06/27/00	0825	3.26	0.30	3.35	0.20		0.07	1.64	2.00	3.71	0.73	0.17	235.0	400.0	
	0.1	07/19/00	0835	0.93	0.12	0.57	0.13	<0.04	0.12	0.26	1.95	2.33	0.42	0.06	68.0	103.0	1.6
	0.1	08/15/00	0815	1.03	0.06	0.27	0.10		0.03	0.08	1.00	1.11	0.38	0.18	16.0	18.0	2.7
	0.1	09/12/00	0815	0.39	0.08	0.18	0.07		U	U	0.90	0.90	0.20	0.10	24.0	24.0	8.2
	0.1	10/17/00	0830	0.17					U	U	0.30	0.30	0.10	0.08	13.0	16.0	3.6
	0.1	11/14/00	0830	0.22	<0.05	0.10	0.07		U	0.32	0.98	1.30	0.22	0.10	15.0	11.0	2.4
	Mean				0.74	0.12	0.62	0.10	0.20	0.58	1.07	1.38	0.29	0.11	42.17	66.00	2.72
RA-32	0.1	05/12/97	1430	4.16	0.23	2.18	0.71									57.0	
	0.1	06/09/97	1205	86.20	3.08	38.70	23.70		0.12	6.00	2.90	9.02	0.24	0.16		289.0	
	0.1	06/23/97	1245	25.00	2.46	31.40	<0.04		0.37	5.96	2.80	9.13	0.43	0.28		340.0	
	0.1	06/25/97	1330	17.60	1.23	13.00	2.80		0.20	4.73	4.00	8.93	0.61	0.44		923.0	
	0.1	07/21/97	1400	4.05	0.62	3.46	0.88		0.13	0.15	2.00	2.28	0.12	0.04		102.0	
	0.1	08/19/97	1210	3.19	0.25	1.21	0.52		0.02	0.14	2.90	3.06	0.33	0.11		72.0	
	0.1	09/15/97	1230	1.65	0.42	1.07			0.13	0.10	1.70	1.93	0.20	0.07		32.0	
	0.1	10/14/97	1240	0.93	0.90	3.37			0.27	1.72	2.20	4.19	0.71	0.58		170.0	
	0.1	11/12/97	1414	1.42	0.36	1.30	0.31		0.04	0.89	1.00	1.93	0.27	0.14		18.0	
	Mean			16.02	1.06	10.63	4.82		0.16	2.46	2.44	5.06	0.36	0.23		222.56	
RA-32	0.1	03/17/98	0920	0.26	0.18	0.69	0.11		0.05	1.69	0.90	2.64	0.24	0.13		45.0	
	0.1	04/15/98	1525	0.42	0.21	0.48	0.27		0.11	0.69	2.50	3.30	0.32	0.23		354.0	
	0.1	05/12/98	1035	6.70	0.25	3.00	0.31		0.21	0.96	1.30	2.47	0.55	0.07		77.0	
	0.1	05/23/98	0930	46.40	0.78	21.30	0.85		0.42	3.81	2.90	7.13	0.39	0.16		369.0	
	0.1	06/23/98	1345	10.80	0.45	3.75	0.37		0.10	1.47	1.20	2.77	0.10	0.09		59.0	
	0.1	07/07/98	1430	4.52	0.45	3.27	0.30		0.20	1.94	1.80	3.94	0.36	0.27		645.0	
	0.1	07/21/98	1330	2.81	0.33	2.14	0.23		0.05	0.23	1.30	1.58	0.29	0.08		50.0	
	0.1	08/17/98	1315	1.58	0.17	0.82	0.11		0.02	0.02	0.90	0.94	0.20	0.04		11.0	
	0.1	09/14/98	1125	0.94	0.12	0.37	0.05		0.17	0.03	1.10	1.30	0.14	0.09			
	0.1	10/13/98	1358	1.61	0.29	2.19	1.43		0.34	1.82	1.70	3.86	0.36	0.23			
	0.1	11/10/98	0945	0.65	0.06	0.48	0.11		0.42	1.49	2.10	4.01	0.57	0.45	380.0	402.0	
	Mean			6.97	0.30	3.50	0.38		0.19	1.29	1.61	3.09	0.32	0.17	380.00	223.56	
RA-32	0.1	03/17/99	1000	0.37	0.06	0.45	0.07		0.26	5.60	1.69	7.55	0.59	0.19	165.0	242.0	
	0.1	04/13/99	0940	0.46	0.14	0.45	0.15		0.73	3.09	0.88	4.70	0.22	0.12	49.0	58.0	
	0.1	05/11/99	0940	0.55	0.07	0.27	0.06		0.10	0.95	0.95	2.00	0.49	0.06	37.0	43.0	
	0.1	06/11/99	0915	56.20	1.90	24.70	1.58		0.40	3.63	4.71	8.74	1.36	0.17	1053.0	1145.0	
	0.1	06/15/99	0930	23.30	0.36	10.10	0.30		0.18	2.96	1.80	4.94	0.36	0.07	181.0	180.0	
	0.1	07/13/99	1032	9.60	1.82	3.77	0.31		0.37	1.50	1.59	3.46	0.21	0.03	114.0	183.0	
	0.1	08/18/99	1000	1.90	0.35	1.11	0.12		0.11	0.44	0.56	1.11	0.17	0.13	160.0	389.0	
	0.1	09/13/99	0940	0.77	0.15	0.44	0.05					0.00			29.0	58.0	
	0.1	10/13/99	1025	0.85	0.19	0.44	0.16		U	U	1.15	1.15	0.30	0.16	21.0	32.0	
	0.1	11/15/99	1040	0.89	0.24	0.64	0.05		U	U	0.86	0.86	0.41	0.31	15.0	9.3	
	Mean			9.49	0.53	4.24	0.29		0.31	2.60	1.58	3.45	0.46	0.14	182.40	233.93	
RA-32	0.1	03/28/00	0945	1.78	0.24	<0.05	<0.04		U	U	1.00	1.00	0.08	0.04	6.3	8.7	
	0.1	04/18/00	1000	1.25	0.30	0.88	<0.04		U	U	1.00	1.00	0.14	0.05	5.6	5.6	
	0.1	05/16/00	1000	0.93	0.24	0.14	<0.04		U	U	2.00	2.00	0.25	0.09	14.0	23.0	
	0.1	06/13/00	1000	17.80	0.14	0.50	0.14		0.83	U	3.00	3.83	0.63	0.08	78.0	214.0	

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-32	0.1	06/27/00	0945	3.48	0.24	4.73	0.28		0.15	4.48	1.00	5.63	0.50	0.32	70.0	72.0	
	0.1	07/19/00	1030	1.91	0.16	1.51	0.21	0.30	0.15	0.14	1.52	1.81	0.62	0.10	127.0	439.0	
	0.1	08/15/00	0950	1.37	0.12	0.73	0.12		0.11	U	1.00	1.11	0.30	0.07	34.0	58.0	
	0.1	09/12/00	0950	1.25	0.11	0.54	0.12		U	U	1.10	1.10	0.10	0.06	83.0	229.0	
	0.1	10/17/00	DRY														
	0.1	11/14/00	DRY														
Mean				3.72	0.19	1.29	0.17		0.31	2.31	1.45	2.19	0.33	0.10	52.24	131.16	
RA-33	0.1	05/12/97	1600	2.98	0.16	1.82	0.18		0.14	1.69	1.00	2.83	0.09	0.08			
	0.1	05/14/97	0830									0.00				11.0	
	0.1	06/09/97	1350	7.48	0.39	4.22	0.54		0.39	0.01	1.60	2.00	0.11	0.07		42.0	
	0.1	06/23/97	1405	35.60	0.84	12.00	16.70		0.05	2.42	2.20	4.67	0.43	0.08		81.0	
	0.1	06/25/97	1155	31.40	1.03	17.75	1.28		0.31	7.07	5.20	12.58	1.00	0.37		1856.0	
	0.1	07/21/97	1500	4.08	1.71	2.40	0.96		0.46	0.09	2.90	3.45	0.16	0.06		250.0	
	0.1	08/19/97	1320	5.70	1.32	3.50	<0.04		0.12	0.17	2.00	2.29	0.30	0.08		114.0	
	0.1	10/14/97	1400									0.21	1.38	1.90	3.49	0.58	
	0.1	11/12/97	1530	0.65	0.56	0.24	0.18		0.04	0.83	0.90	1.77	0.25	0.17		86.0	
	Mean			12.56	0.86	5.99	3.31		0.22	1.71	2.21	3.68	0.37	0.16		312.25	
RA-33	0.1	03/17/98	1120	<0.05	<0.05	<0.05	<0.04		0.09	1.30	1.00	2.39	0.12	0.12		50.0	
	0.1	04/15/98	1345	0.21	0.05	0.04	0.08		0.11	0.67	3.50	4.28	0.53	0.18		1000.0	
	0.1	05/12/98	1158	2.00	0.11	0.95	0.21		0.08	1.87	1.10	3.05	0.24	0.06		e38	
	0.1	05/23/98	0850	93.60	0.86	24.00	1.62		0.50	6.02	3.50	10.02	0.51	0.15		404.0	
	0.1	06/23/98	1515	11.10	0.35	2.79	2.15		0.09	1.26	1.00	2.35	0.16	0.10		63.0	
	0.1	07/07/98	1525	4.42	0.24	1.28	0.63		0.31	2.26	1.10	3.67	0.65	0.28		176.0	
	0.1	07/21/98	1430	2.36	0.22	1.26	0.77		0.26	0.16	0.60	1.02	0.13	0.06		22.0	
	0.1	08/17/98	1410	1.24	0.10	0.39	0.27		0.04	0.03	0.80	0.87	0.18	0.03		22.0	
	0.1	09/14/98	1215	0.56	0.05	0.13	0.08		0.16	0.14	1.40	1.70	0.22	0.07			
	0.1	10/13/98	1450	0.29	<0.05	0.06	0.06		0.21	0.50	1.20	1.91	0.28	0.17			
	0.1	11/10/98	1000	1.15	<0.05	0.11	0.15		0.19	1.68	2.20	4.07	0.58	0.34	570.0	692.0	
Mean				11.69	0.25	3.10	0.60		0.19	1.44	1.58	3.21	0.33	0.14	570.00	303.63	
RA-33	0.1	03/17/99	1020	0.31	0.05	<0.05	0.04		0.33	6.92	2.50	9.75	0.97	0.21	330.0	590.0	
	0.1	04/13/99	1010	0.28	0.08	0.09	0.08		0.17	5.32	0.96	6.45	0.22	0.13	52.0	50.0	
	0.1	05/11/99	1000	0.16	<0.05	0.14	<0.04		U	0.11	0.69	0.80	0.40	0.03	16.0	21.0	
	0.1	06/11/99	0930	63.40	0.55	25.70	0.88		0.23	2.55	6.24	9.02	1.70	0.16	1660.0	1135.0	
	0.1	06/15/99	0945	20.70	0.25	8.10	0.41		U	2.57	1.40	3.97	0.25	0.08	98.0	99.0	
	0.1	07/13/99	1050	1.95	0.21	2.26	0.17		0.14	1.21	1.32	2.67	0.26	0.01	45.0	37.0	
	0.1	08/18/99	1030	0.34	0.07	0.23	0.05		0.05	0.29	0.37	0.71	0.14	0.12	26.0	30.0	
	0.1	09/13/99	1000	0.30	<0.05	0.15	<0.04		0.11	U	0.63	0.74	0.14	0.05	10.0	15.0	
	0.1	10/13/99	1040	0.28	0.07	0.08	0.34					0.00			13.0	32.0	
	0.1	11/15/99	1100	0.22	<0.05	0.22	<0.04		U	U	0.48	0.48	0.16	0.12	5.0	9.9	
Mean				8.79	0.18	4.11	0.28		0.17	2.71	1.62	3.46	0.47	0.10	225.50	201.89	
RA-33	0.1	03/28/00	1000	0.08	0.06	<0.05	<0.04		U	U	0.74	0.74	0.13	0.05	8.0	16.0	
	0.1	04/18/00	1030	0.10	0.12	0.21	<0.04		U	U	0.71	0.71	0.15	0.08	7.0	3.4	
	0.1	05/16/00	1020	2.54	0.12	0.17	0.05		U	U	1.00	1.00	0.23	0.08	12.0	5.7	
	0.1	06/13/00	1020	18.10	<0.05	1.41	0.17		0.86	U	2.00	2.86	0.18	0.07	18.0	21.0	

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-33	0.1	06/27/00	1010	2.73	0.17	2.04	0.16		0.11	2.81	2.00	4.92	0.43	0.20	90.0	137.0	
	0.1	07/19/00	1100	0.90	0.09	0.47	0.10	0.23	0.02	0.03	1.15	1.20	0.24	0.05	20.0	22.0	
	0.1	08/15/00	1015	0.41	<0.05	0.17	0.05		U	0.11	0.95	1.06	0.41	0.08	26.0	27.0	
	0.1	09/12/00	DRY														
	0.1	10/17/00	DRY														
	0.1	11/14/00	1010	0.14	0.05	0.21	<0.04		0.05	0.42	2.10	2.57	0.21	0.11	38.0	20.0	
	Mean			3.13	0.10	0.67	0.11		0.26	0.84	1.33	1.88	0.25	0.09	27.38	31.51	
RA-34	0.1	05/12/97	1430						0.14	2.22	1.10	3.46	0.09	0.08		13.0	
	0.1	05/14/97	0830	0.06	<0.05	<0.05	<0.04		0.08	0.01	1.70	1.79	0.16	0.03			
	Mean			0.06					0.11	1.12	1.40	2.63	0.13	0.06		13.00	
RA-34	0.1	03/18/98	1540	<0.05	<0.05	0.10	<0.04		0.15	0.07	1.30	1.52	0.06	0.05		86.0	
	0.1	04/15/98	1710	0.10	<0.05	<0.05	0.04		0.09	0.04	1.20	1.33	0.06	0.05		15.0	
	0.1	05/12/98	1430	1.63	0.65	0.31	0.18		0.13	0.37	1.60	2.10	0.47	0.04		29.0	
	0.1	05/23/98	1130	3.27	0.76	0.88	0.63		0.34	0.44	1.50	2.28	0.29	0.05		190.0	
	0.1	06/25/98	0910	3.65	0.96	1.71	0.73		0.08	0.57	1.30	1.95	0.10	0.05		11.0	
	0.1	07/22/98	1330	1.00	0.71	0.42	0.25		0.03	0.29	1.10	1.42	0.12	0.07		147.0	
	0.1	08/18/98	1430	0.25	0.62	0.11	0.09		0.09	0.05	0.60	0.74	0.23	0.10		84.0	
	0.1	09/14/98	1300	4.30	1.62	2.97	1.32		0.61	1.45	0.70	2.76	0.46	0.19			
	0.1	10/14/98	1558	0.44	0.92	0.21	0.12		0.25	0.68	1.60	2.53	0.14	0.06			
	Mean			1.83	0.89	0.84	0.42		0.20	0.44	1.21	1.85	0.21	0.07		80.29	
RA-34	0.1	03/17/99	1345	2.18	1.03	1.59	0.75		0.39	1.44	0.92	2.75	0.18	0.04	24.0	25.0	
	0.1	04/13/99	1345	0.56	0.36	0.24	0.18		0.04	0.43	0.14	0.61	0.07	0.04	21.0	17.0	
	0.1	05/11/99	1400	1.53	0.82	1.25	1.20		0.18	0.43	1.31	1.92	0.44	0.01	25.0	20.0	
	0.1	06/11/99	1235	18.80	0.88	3.53	0.70		0.08	0.08	5.22	5.38	0.38	0.05	93.0	71.0	
	0.1	06/15/99	1230	2.90	0.27	1.18	0.21		0.04	0.66	0.61	1.31	0.08	0.05	16.0	24.0	
	0.1	07/13/99	1600	0.60	0.64	0.24	0.11		0.16	0.43	0.75	1.34	0.16	0.05	17.0	58.0	
	0.1	08/18/99	1400	0.23	0.69	0.14	0.06		0.12	0.24	0.39	0.75	0.22	0.10	47.0	86.0	
	0.1	10/13/99	1040						0.08	U	0.70	0.78	0.33	0.27			
	Mean			3.83	0.67	1.17	0.46		0.14	0.53	1.26	1.86	0.23	0.08	34.71	43.00	
	RA-34	0.1	03/28/00	DRY													
RA-34	0.1	04/18/00	1430	0.28	0.46	0.16	<0.04		U	U	2.00	2.00	0.51	U	55.0	140.0	
	0.1	05/16/00	DRY														
	0.1	06/13/00	DRY														
	0.1	06/27/00	1400	11.50	0.92	4.52	0.90		0.22	0.55	2.00	2.77	0.30	0.03	27.0	24.0	
	0.1	07/19/00	DRY														
	0.1	08/15/00	DRY														
	0.1	09/12/00	DRY														
	0.1	10/17/00	DRY														
	0.1	11/14/00	DRY														
	Mean			5.89	0.69	2.34	0.90		0.22	0.55	2.00	2.39	0.41	0.03	41.00	82.00	
RA-35	0.1	05/12/97	0840	0.77	0.05	0.35	0.36		0.12	0.65	1.20	1.97	0.23	0.05		33.0	
	0.1	06/10/97	1010	44.20	0.34	4.57	15.40		0.57	1.66	0.70	2.93	0.11	0.08		74.0	
	0.1	06/24/97	1045	16.50	0.86	3.22	1.91		0.03	3.31	1.80	5.14	0.18	0.08		171.0	

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-35	0.1	06/25/97	1205	18.20	0.67	2.92	4.85		0.21	6.59	4.10	10.90	0.70	0.32		729.0	
	0.1	07/22/97	0830	3.40	0.31	1.16	0.81		0.11	0.05	1.40	1.56	0.24	0.06		25.0	
	0.1	08/17/97	1400	12.40	0.31	1.20	0.44		0.15	0.41	3.70	4.26	0.99	0.11		849.0	
	0.1	08/20/97	0915	11.60	0.37	1.05	<0.04		0.12	0.51	2.40	3.03	0.28	0.06		162.0	
	0.1	09/15/97	1505	2.02	0.10	0.21			<0.02	0.07	0.90	0.97	0.10	0.08		18.0	
	0.1	10/15/97	1400	1.87	0.15	0.81			0.32	1.02	1.30	2.64	0.22	0.18		80.0	
	0.1	11/13/97	0825	0.37	<0.05	0.12	0.17		0.22	0.75	0.60	1.57	0.18	0.11		23.0	
	Mean			11.13	0.35	1.56	3.42		0.21	1.50	1.81	3.50	0.32	0.11		216.40	
RA-35	0.1	03/17/98	1520	<0.05	<0.05	0.06	0.05		0.22	0.79	2.50	3.51	0.24	0.19		979.0	
	0.1	04/15/98	0945	0.29	<0.05	0.10	0.08		0.11	0.60	1.70	2.41	0.35	0.14		671.0	
	0.1	05/13/98	1005	1.89	0.09	0.77	0.19		0.10	0.77	0.80	1.67	0.16	0.06		55.0	
	0.1	05/22/98	1530	37.80	0.62	18.60	2.78		0.53	3.84	5.60	9.97	0.92	0.14		1160.0	
	0.1	06/24/98	0815	7.90	0.36	1.61	0.38		0.10	1.04	0.90	2.04	0.12	0.06		357.0	
	0.1	07/21/98	1621	1.32	0.12	0.54	0.15		0.08	0.03	0.80	0.91	0.11	0.07		11.0	
	0.1	08/17/98	1630	1.66	0.40	1.09	0.11		0.05	0.04	0.70	0.79	0.17	0.05		21.0	
	0.1	09/14/98	1710	0.79	0.06	0.22	0.05		0.07	0.06	1.20	1.33	0.22	0.07			
	0.1	10/14/98	0802	0.31	<0.05	0.15	<0.04		0.14	1.13	1.20	2.47	0.25	0.17			
	0.1	11/10/98	1100	0.33	<0.05	0.18	<0.04		0.18	1.38	1.40	2.96	0.53	0.30	150.0	266.0	
	Mean			5.81	0.28	2.33	0.47		0.16	0.97	1.68	2.81	0.31	0.13	150.00	440.00	
RA-35	0.1	03/17/99	1120	0.17	<0.05	<0.05	<0.04		0.20	3.16	0.78	4.14	0.40	0.04	135.0	210.0	
	0.1	04/13/99	1110	0.09	<0.05	0.05	<0.04		0.04	0.46	0.39	0.89	0.10	0.05	20.0	17.0	
	0.1	05/11/99	1105	0.31	<0.05	0.15	<0.04		U	0.71	0.72	1.43	0.44	0.05	34.0	32.0	
	0.1	06/11/99	1020	35.10	0.47	4.76	0.48		0.34	2.99	4.48	7.81	1.07	0.11	743.0	718.0	
	0.1	06/15/99	1030	14.90	0.34	1.57	0.23		0.07	1.36	1.28	2.71	0.29	0.07	125.0	107.0	
	0.1	07/13/99	1153	1.08	0.23	1.52	0.08		0.02	0.18	0.70	0.90	0.11	0.02	29.0	40.0	
	0.1	08/18/99	1130	1.26	0.18	0.87	0.06		0.09	0.03	0.53	0.65	0.15	0.09	51.0	66.0	
	0.1	09/13/99	1100	0.70	0.09	0.64	<0.04		0.06	0.05	0.83	0.94	0.12	0.03	47.0	51.0	
	0.1	10/13/99	1150	0.57	0.10	0.36	0.11		0.03	U	0.79	0.82	0.30	0.18	36.0	32.0	
	Mean			6.02	0.24	1.24	0.19		0.11	1.12	1.17	2.25	0.33	0.07	135.56	141.44	
RA-35	0.1	03/28/00	1100	0.29	0.05	<0.05	<0.04		U	U	0.83	0.83	0.04	0.04	3.7	3.6	
	0.1	04/18/00	1145	0.19	0.11	<0.05	<0.04		U	U	0.94	0.94	0.14	0.04	10.0	9.6	
	0.1	05/16/00	1130	0.38	0.07	0.29	<0.04		U	U	2.00	2.00	0.21	0.03	26.0	29.0	
	0.1	06/13/00	1130	3.71	0.16	0.57	0.12		0.43	U	2.00	2.43	0.41	0.14	48.0	72.0	
	0.1	06/27/00	1130	3.27	0.19	2.84	0.18		0.27	1.62	2.00	3.89	0.60	0.35	75.0	106.0	
	0.1	07/19/00	1200	1.59	0.09	0.74	0.12	0.99	U	0.03	1.00	1.03	0.28	0.06	54.0	82.0	
	0.1	08/15/00	1110	1.57	0.06	0.47	0.10		U	0.09	1.00	1.09	0.30	0.10	46.0	57.0	
	0.1	09/12/00	DRY														
	0.1	10/17/00	1050	0.30					U	U	2.00	2.00	0.80	0.50	29.0	22.0	
	0.1	11/14/00	1115	0.46	<0.05	0.15	<0.04		U	3.10	1.20	4.30	0.31	0.19	22.0	8.4	
	Mean			1.31	0.10	0.84	0.13		0.35	1.21	1.44	2.06	0.34	0.16	34.86	43.29	
RA-36	0.1	05/13/97	1015	0.69	<0.05	0.10	0.13		0.05	0.20	1.10	1.35	0.13	0.04		65.0	
	0.1	06/10/97	0810	43.30	0.33	13.45	5.40		0.10	1.36	1.00	2.46	0.16	0.12		93.0	
	0.1	06/24/97	0845	35.30	<0.05	20.40	<0.04		0.12	6.53	2.20	8.85	0.13	0.12		203.0	
	0.1	06/25/97	1505	23.00	0.93	4.60	7.55		0.19	8.39	3.70	12.28	0.49	0.31		782.0	

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-36	0.1	07/22/97	0915	3.34	0.24	1.24	0.57		0.08	0.06	1.40	1.54	0.39	0.08		18.0	
	0.1	08/17/97	1500	1.38	0.46	1.28	0.19		0.28	1.76	4.30	6.34	1.86	0.51		1187.0	
	0.1	08/20/97	0822	1.48	0.19	1.77	0.12		0.34	0.80	2.50	3.64	0.28	0.14		188.0	
	0.1	09/15/97	1350	0.67	0.16	0.24			0.15	0.07	1.20	1.42	0.20	0.07		24.0	
	0.1	10/15/97	1530	1.11	0.10	1.31	0.08		0.90	1.23	1.20	3.33	0.24	0.15		56.0	
	0.1	11/13/97	0949						0.13	0.67	0.50	1.30	0.12	0.10		42.0	
	Mean			12.25	0.34	4.93	2.01		0.23	2.11	1.91	4.25	0.40	0.16		265.80	
RA-36	0.1	03/17/98	1325	0.08	<0.05	1.50	<0.04		0.23	0.83	2.40	3.46	0.31	0.19		1284.0	
	0.1	04/15/98	1110	0.33	<0.05	0.09	0.10		0.07	0.79	1.70	2.56	0.33	0.17		520.0	
	0.1	05/13/98	0845	4.79	0.16	5.30	0.22		0.09	0.50	0.70	1.29	0.11	0.05		31.0	
	0.1	05/22/98	1620	82.80	<0.05	29.10	0.67		0.32	4.30	3.90	8.52	0.58	0.12		715.0	
	0.1	06/24/98	0920	3.12	0.25	1.68	0.19		0.18	0.64	1.60	2.42	0.26	0.06		535.0	
	0.1	07/21/98	1535	2.13	0.20	1.10	0.17		0.08	0.05	0.80	0.93	0.12	0.06		17.0	
	0.1	08/17/98	1525	1.08	0.06	0.25	0.08		0.02	0.03	0.60	0.65	0.19	0.05		6.0	
	0.1	09/14/98	1545	0.32	<0.05	0.07	<0.04		0.46	0.22	1.60	2.28	0.19	0.09			
	0.1	10/14/98	0910	0.34	0.10	0.24	<0.04		0.19	1.21	1.40	2.80	0.23	0.14			
	0.1	11/10/98	1040	0.80	0.07	0.36	0.12		0.13	1.63	1.50	3.26	0.47	0.28	250.0	290.0	
	Mean			9.58	0.14	3.97	0.22		0.18	1.02	1.62	2.82	0.28	0.12	250.00	424.75	
RA-36	0.1	03/17/99	1100	0.24	<0.05	0.09	<0.04		0.29	5.70	1.29	7.28	0.45	0.09	175.0	263.0	
	0.1	04/13/99	1040	0.20	0.05	0.07	<0.04		0.09	1.53	0.33	1.95	0.09	0.05	16.0	15.0	
	0.1	05/11/99	1045	0.15	<0.05	0.07	<0.04		U	U	0.37	0.37	0.37	0.03	36.0	13.0	
	0.1	06/11/99	1005	27.70	0.48	10.50	0.36		0.22	1.71	3.18	5.11	0.90	0.11	573.0	663.0	
	0.1	06/15/99	1015	20.70	0.17	2.86	0.24		0.08	0.96	0.95	1.99	0.20	0.06	60.0	68.0	
	0.1	07/13/99	1134	2.59	0.09	1.47	0.18		0.13	0.37	0.89	1.39	0.13	0.03	20.0	28.0	
	0.1	08/18/99	1100	0.65	0.05	0.26	0.06		0.16	0.20	0.36	0.72	0.13	0.16	21.0	34.0	
	0.1	09/13/99	1035	0.31	0.07	0.15	<0.04		0.06	U	0.45	0.51	0.10	0.06	6.0	19.0	
	0.1	10/13/99	1125	0.25	0.05	0.18	0.08		U	U	0.64	0.64	0.40	0.37	5.0	6.9	
	0.1	11/15/99	1140	0.08	0.05	0.12	<0.04		U	U	0.75	0.75	0.29	0.09	6.5	18.0	
	Mean			5.29	0.13	1.58	0.18		0.15	1.75	0.92	2.07	0.31	0.11	91.85	112.79	
RA-36	0.1	03/28/00	1040	0.13	0.06	<0.05	<0.04		0.16	0.04	0.93	1.13	0.07	0.03	6.6	8.6	
	0.1	04/18/00	1115	0.08	<0.05	<0.05	<0.04		U	U	0.90	0.90	0.14	0.04	8.1	12.0	
	0.1	05/16/00	1100	0.45	<0.05	0.22	<0.04		U	U	0.72	0.72	0.14	0.06	4.5	5.9	
	0.1	06/13/00	1145	1.14	<0.05	<0.05	<0.04		0.78	U	2.00	2.78	0.24	0.11	4.8	11.0	
	0.1	06/27/00	1100	3.10	0.19	2.12	0.18		0.17	3.09	2.00	5.26	0.46	0.27	65.0	57.0	
	0.1	07/19/00	1130	1.11	0.08	0.42	0.10	0.76	0.03	0.14	1.07	1.24	0.44	0.09	32.0	49.0	
	0.1	08/15/00	DRY														
	0.1	09/12/00	DRY														
	0.1	10/17/00	1030	1.24					U	U	0.20	0.20	0.20	0.20	5.0	3.1	
	0.1	11/14/00	1045	4.19	<0.05	1.66	0.25		0.11	3.10	1.20	4.41	0.31	0.21	52.0	24.0	
	Mean			1.43	0.11	1.11	0.18		0.25	1.59	1.13	2.08	0.25	0.13	22.25	21.33	
RA-37	0.1	05/13/97	1212	2.13	0.09	1.49	0.31		0.03	0.08	1.00	1.11	0.11	0.03		9.0	
	0.1	06/10/97	1330	4.22	0.15	2.50	0.92		0.28	0.61	1.00	1.89	0.15	0.11		46.0	
	0.1	06/24/97	1435	4.05	0.19	0.71	0.45		0.20	0.06	1.10	1.36	0.08	0.03		17.0	
	0.1	07/22/97	1130	1.50	0.06	<0.05	<0.04		0.07	0.02	1.50	1.59	0.05	0.03		53.0	

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-37	0.1	08/17/97	1225	2.17	0.11	0.72	0.24		0.06	0.64	2.50	3.20	0.82	0.19		730.0	
	0.1	08/20/97	1215	3.34	0.17	0.92	0.25		0.08	0.09	1.40	1.57	0.21	0.08		65.0	
	0.1	09/16/97	0900	0.84	<0.05	0.11	0.08		0.09	0.07	0.90	1.06	0.12	0.05		15.0	
	0.1	10/16/97	1015	1.71	<0.05	0.55			0.26	0.49	1.50	2.25	0.27	0.11		38.0	
	0.1	11/13/97	1142	0.19	<0.05	<0.05	<0.04		0.11	0.18	0.40	0.69	0.08	0.06		21.0	
	Mean			2.24	0.13	1.00	0.38		0.13	0.25	1.26	1.64	0.21	0.08		110.44	
RA-37	0.1	03/18/98	1700	0.05	<0.05	0.06	<0.04		<0.02	1.17	2.00	3.17	0.21	0.16		739.0	
	0.1	04/14/98	1510	0.09	<0.05	<0.05	<0.04		0.08	0.38	1.20	1.66	0.15	0.11		164.0	
	0.1	05/13/98	1245	3.22	<0.05	2.05	0.17		0.08	0.19	0.70	0.97	0.15	0.04		29.0	
	0.1	05/23/98	0745						0.29	2.06	0.30	2.65	0.26	0.07		289.0	
	0.1	06/24/98	1245	7.70	0.08	1.97	0.21		0.08	0.60	0.70	1.38	0.10	0.03		131.0	
	0.1	07/07/98	1715	3.90	0.20	1.54	0.24		0.25	0.62	1.30	2.17	0.27	0.15		287.0	
	0.1	07/22/98	0855	1.35	<0.05	0.53	0.11					0.00				37.0	
	0.1	08/18/98	0905	0.65	<0.05	0.19	0.05		0.07	0.06	0.40	0.53	0.16	0.04		28.0	
	0.1	09/14/98	1550	0.20	<0.05	0.16	<0.04		0.26	0.51	2.10	2.87	1.13	0.63			
	0.1	10/14/98	1150						0.06	0.77	1.20	2.03	0.58	0.52			
	0.1	11/10/98	1150	0.38	<0.05	0.10	<0.04		0.25	1.39	1.30	2.94	0.72	0.30	125.0	252.0	
	Mean			1.95	0.14	0.83	0.16		0.16	0.78	1.12	1.85	0.37	0.21	125.00	217.33	
RA-37	0.1	03/17/99	1230	0.17	<0.05	<0.05	<0.04		0.26	3.52	1.42	5.20	0.73	0.08	235.0	510.0	
	0.1	04/13/99	1220	0.07	<0.05	<0.05	<0.04		U	0.21	0.14	0.35	0.05	0.04	14.0	11.0	
	0.1	05/11/99	1240	0.83	<0.05	0.28	0.07		U	0.84	0.59	1.43	0.45	0.05	9.5	31.0	
	0.1	06/11/99	1125	30.10	0.28	4.50	0.33		0.19	1.05	2.42	3.66	0.55	0.09	275.0	425.0	
	0.1	06/15/99	1130	11.60	0.11	2.44	0.21		0.04	0.41	0.72	1.17	0.15	0.09	27.0	34.0	
	0.1	07/13/99	1310	1.34	0.06	0.78	0.08		0.03	U	0.75	0.78	0.13	0.01	16.0	29.0	
	0.1	08/18/99	1230	1.19	<0.05	0.19	0.06		0.33	U	0.49	0.82	0.09	0.06	35.0	47.0	
	0.1	09/13/99	1210	0.28	<0.05	0.10	<0.04		0.07	0.06	0.68	0.81	0.11	0.01	9.0	14.0	
	0.1	10/13/99	1300	0.18	<0.05	0.09	0.07		0.12	U	0.80	0.92	0.08	0.01	22.0	26.0	
	0.1	11/15/99	1310	0.12	<0.05	0.09	<0.04		U	U	1.45	1.45	0.36	0.04	6.5	3.9	
	Mean			4.59	0.15	1.06	0.14		0.15	1.02	0.95	1.66	0.27	0.05	64.90	113.09	
RA-37	0.1	03/28/00	1210	<0.05	<0.05	<0.05	<0.04		U	U	0.67	0.67	0.04	0.02	7.5	9.4	
	0.1	04/18/00	1315	<0.05	0.12	0.17	<0.04		U	U	0.67	0.67	0.10	0.03	6.0	7.6	
	0.1	05/16/00	1300	0.80	<0.05	<0.05	<0.04		U	U	1.00	1.00	0.14	0.06	22.0	20.0	
	0.1	06/13/00	1300	19.30	0.08	2.16	0.17		1.87	0.03	5.00	6.90	0.35	0.02	43.0	70.0	
	0.1	06/27/00	1240	3.60	0.11	2.20	0.17		0.09	1.10	1.00	2.19	0.33	0.12	58.0	58.0	
	0.1	07/19/00	1345	1.71	0.05	0.93	0.13	0.23	3.00	0.13	4.74	7.87	0.33	0.02	41.0	51.0	
	0.1	08/15/00	1300	0.44	<0.05	0.16	0.05		2.01	0.50	4.10	6.61	0.51	0.07	47.0	44.0	
	0.1	09/12/00	DRY														
	0.1	10/17/00	1225	0.66					U	U	1.00	1.00	0.10	0.04	13.0	15.0	
	0.1	11/14/00	1230	0.48	<0.05	0.21	<0.04		0.12	2.10	0.95	3.17	0.21	0.11	21.0	15.0	
	Mean			3.86	0.09	0.97	0.13		1.42	0.77	2.13	3.34	0.23	0.05	28.72	32.22	
RA-38	0.1	05/13/97	1610	1.73	0.06	1.33	0.54		0.10	0.23	1.10	1.43	0.20	0.03		16.0	
	0.1	06/10/97	1455	6.42	0.15	5.75	2.21		0.28	0.80	0.80	1.88	0.13	0.09		32.0	
	0.1	06/24/97	1545	8.75	0.46	3.29	1.67		0.24	0.19	1.60	2.03	0.09	0.05		141.0	
	0.1	08/17/97	1110	2.21	0.15	1.41	4.00		0.09	1.30	2.40	3.79	1.24	0.48		370.0	

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-38	0.1	08/20/97	1410	1.47	0.09	0.85	0.18		0.14	0.33	1.10	1.57	0.24	0.08		22.0	
	0.1	10/15/97	1200	0.93	0.07	0.74			0.32	0.80	1.00	2.12	0.26	0.24		33.0	
	0.1	11/13/97	1455	0.47	<0.05	0.58	0.06		0.24	0.42	0.60	1.26	0.21	0.09		45.0	
Mean				3.14	0.16	1.99	1.44		0.20	0.58	1.23	2.01	0.34	0.15		94.14	
RA-38	0.1	03/16/98	1550	<0.05	<0.05	0.06	<0.04		0.11	0.86	0.70	1.67	0.17	0.05		29.0	
	0.1	04/14/98	1335	0.09	<0.05	<0.05	0.05		0.11	0.52	1.10	1.73	0.12	0.09		145.0	
	0.1	05/13/98	1420	9.00	0.22	2.38	0.20		0.13	0.52	0.50	1.15	0.07	0.03		22.0	
	0.1	05/22/98	1645	20.40	0.36	4.76	0.52		0.36	3.02	3.70	7.08	0.54	0.14		648.0	
	0.1	06/24/98	1545	3.84	0.16	1.65	0.21		0.14	0.70	1.20	2.04	0.19	0.04		115.0	
	0.1	07/22/98	1035	1.23	<0.05	0.48	0.10		0.03	0.36	1.10	1.49	0.16	0.04		36.0	
	0.1	08/18/98	1115	0.69	0.06	0.21	0.06		<0.02	0.03	0.70	0.73	0.16	0.03		26.0	
	0.1	09/14/98	1426	0.21	<0.05	0.16	<0.04		0.50	2.17	1.20	3.87	0.70	0.30			
	0.1	10/14/98	1335	0.35	<0.05	0.06	0.05		0.10	0.43	1.00	1.53	0.13	0.06			
	0.1	11/10/98	1230	0.36	<0.05	0.11	<0.04		0.55	1.72	1.70	3.97	0.84	0.36	130.0	187.0	
Mean				4.02	0.20	1.10	0.17		0.23	1.03	1.29	2.53	0.31	0.11	130.00	151.00	
RA-38	0.1	03/17/99	1300	0.15	<0.05	<0.05	<0.04		0.16	3.87	1.31	5.34	0.55	0.09	245.0	356.0	
	0.1	04/13/99	1305	0.07	<0.05	<0.05	<0.04		0.05	U	0.18	0.23	0.06	0.02	12.0	11.0	
	0.1	05/11/99	1330	0.78	<0.05	0.33	0.05		0.04	0.13	1.06	1.23	0.55	0.03	80.0	212.0	
	0.1	06/11/99	1200	27.40	0.32	4.65	0.45		0.24	0.92	2.40	3.56	0.56	0.10	295.0	439.0	
	0.1	06/15/99	1215	2.54	0.08	1.42	0.14		U	0.53	0.72	1.25	0.13	0.06	51.0	122.0	
	0.1	07/13/99	1355	0.92	0.06	0.49	0.09		0.02	U	0.76	0.78	0.09	U	19.0	11.0	
	0.1	08/18/99	1330	3.94	<0.05	0.09	0.05		0.10	U	0.49	0.59	0.08	0.04	34.0	59.0	
	0.1	10/13/99	1125						U	U	0.64	0.64	0.40	0.37			
	0.1	11/15/99	1140						U	U	0.75	0.75	0.29	0.09			
Mean				5.11	0.15	1.40	0.16		0.10	1.36	0.92	1.60	0.30	0.10	105.14	172.86	
RA-38	0.1	03/28/00	1300	<0.05	<0.05	<0.05	<0.04		U	1.01	0.70	1.71	0.06	0.04	7.5	8.9	
	0.1	04/18/00	1415	<0.05	0.13	0.17	<0.04		U	U	0.69	0.69	0.10	0.02	17.0	42.0	
	0.1	05/16/00	1350	0.56	<0.05	0.17	<0.04		U	U	0.91	0.91	0.07	0.01	2.9	4.8	
	0.1	06/13/00	1400	32.30	0.12	3.67	0.17		0.28	U	0.94	1.22	0.11	0.03	17.0	20.0	
	0.1	06/27/00	1330	3.26	0.16	2.90	0.17		0.08	1.02	1.00	2.10	0.40	0.16	60.0	50.0	
	0.1	07/19/00	1430	1.11	0.05	0.67	0.11	0.08	0.42	0.97	1.73	3.12	0.27	0.09	29.0	33.0	
	0.1	08/15/00	1345	0.44	<0.05	0.49	0.06		1.01	0.32	3.10	4.43	0.25	0.07	26.0	25.0	
	0.1	09/12/00	DRY														
	0.1	10/17/00	1320	0.31					U	U	0.50	0.50	0.10	0.08	4.5	5.6	
	0.1	11/14/00	1320	0.21	<0.05	0.15	<0.04		0.05	0.98	0.80	1.83	0.14	0.11	16.0	35.0	
Mean				5.46	0.12	1.17	0.13		0.37	0.86	1.15	1.83	0.17	0.07	19.99	24.92	
RA-39	0.1	05/13/97	1420	0.51	0.05	0.24	0.15		0.05	0.27	0.90	1.22	0.16	0.05		64.0	
	0.1	06/10/97	1155	3.88	0.22	3.32	<0.1		0.10	1.42	0.60	2.12	0.24	0.14		76.0	
	0.1	06/24/97	1245	16.70	0.58	2.99	6.75		0.12	2.31	1.80	4.23	0.21	0.15		327.0	
	0.1	07/22/97	1030	1.93	0.18	0.64	0.71		0.19	0.16	1.40	1.75	0.10	0.06		132.0	
	0.1	08/17/97	1615	1.99	0.18	1.07	0.53		0.14	2.08	2.90	5.12	0.70	0.24		712.0	
	0.1	08/20/97	1140	2.36	0.24	1.17	0.82		0.11	0.32	1.80	2.23	0.23	0.08		63.0	
	0.1	09/15/97	1615	0.53	0.11	0.10			0.02	0.07	1.80	1.89	0.19	0.11		28.0	
	0.1	10/16/97	0825	1.52	0.14	1.07			0.27	0.72	1.70	2.69	0.34	0.13		76.0	

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-39	0.1	11/13/97	1319	0.61	0.08	0.29	0.12		0.16	0.49	0.80	1.45	0.17	0.15		14.0	
Mean				3.34	0.20	1.21	1.51		0.13	0.87	1.52	2.52	0.26	0.12		165.78	
RA-39	0.1	03/09/98	1630	0.19	<0.05	0.07	0.04		0.07	1.45	1.40	2.92	0.15	0.08		320.0	
	0.1	04/14/98	1645	0.13	0.07	0.27	0.08		0.09	0.39	1.10	1.58	0.12	0.08		144.0	
	0.1	05/13/98	1130	0.54	0.06	0.28	0.08		0.10	0.46	0.80	1.36	0.22	0.07		47.0	
	0.1	05/22/98	1725	37.60	0.66	4.89	9.40		0.75	3.42	5.70	9.87	0.81	0.14		1170.0	
	0.1	06/25/98	0810	1.65	0.11	0.75	0.11		0.16	0.73	4.00	4.89	0.89	0.15		1810.0	
	0.1	07/08/98	0740	2.67	0.20	1.41	0.27		0.25	0.74	0.90	1.89	0.41	0.14		157.0	
	0.1	07/22/98	0747	0.81	0.11	0.18	0.12		0.13	0.12	3.90	4.15	0.82	0.09		1000.0	
	0.1	08/18/98	0755	0.35	<0.05	0.08	0.05		0.09	0.12	1.00	1.21	0.25	0.07		48.0	
	0.1	09/14/98	1750	0.17	<0.05	0.12	<0.04		0.12	0.47	1.00	1.59	0.22	0.17			
	0.1	10/14/98	1100	0.54	<0.05	<0.05	0.07		0.04	0.39	0.80	1.23	0.12	0.07			
	0.1	11/10/98	1130	0.21	<0.05	0.46	0.15		0.21	0.90	1.40	2.51	0.43	0.28	230.0	294.0	
Mean				4.08	0.20	0.85	1.04		0.18	0.84	2.00	3.02	0.40	0.12	230.00	554.44	
RA-39	0.1	03/17/99	1200	0.25	<0.05	<0.05	<0.04		0.11	1.79	1.36	3.26	0.52	0.06	175.0	330.0	
	0.1	04/13/99	1155	0.15	<0.05	0.12	<0.04		0.38	0.23	0.39	1.00	0.10	0.06	16.0	24.0	
	0.1	05/11/99	1200	0.26	<0.05	0.14	<0.04		U	0.06	0.92	0.98	0.40	0.03	15.0	18.0	
	0.1	06/11/99	1100	17.60	0.19	2.04	0.28		0.24	0.86	2.61	3.71	0.57	0.08	316.0	452.0	
	0.1	06/15/99	1100	4.51	0.06	1.08	0.13		0.08	0.42	0.90	1.40	0.22	0.06	64.0	87.0	
	0.1	07/13/99	1241	0.63	0.06	0.26	0.07		0.14	0.04	0.87	1.05	0.13	0.03	34.0	47.0	
	0.1	08/18/99	1200	0.19	0.09	0.98	0.08		0.17	0.14	0.47	0.78	0.17	0.11	67.0	120.0	
	0.1	09/13/99	1135	0.11	<0.05	<0.05	<0.04		0.04	0.04	1.87	1.95	0.28	0.05	49.0	76.0	
	0.1	10/13/99	1230	0.10	<0.05	0.09	0.07		0.05	U	1.98	2.03	0.54	0.27	34.0	44.0	
	0.1	11/15/99	1240	0.11	<0.05	0.13	<0.04		U	U	1.45	1.45	0.36	0.25	25.0	23.0	
Mean				2.39	0.10	0.61	0.13		0.15	0.45	1.28	1.76	0.33	0.10	79.50	122.10	
RA-39	0.1	03/28/00	1145	0.11	<0.05	<0.05	<0.04		0.04	0.42	1.30	1.76	0.41	0.30	7.1	5.2	
	0.1	04/18/00	1245	0.12	<0.05	0.16	<0.04		U	U	3.00	3.00	0.61	0.26	14.0	15.0	
	0.1	05/16/00	1230	0.58	<0.05	0.13	<0.04		0.07	U	1.00	1.07	0.25	0.17	24.0	43.0	
	0.1	06/13/00	1230	14.90	<0.05	0.89	0.17		0.46	0.86	2.00	3.32	0.36	0.21	55.0	66.0	
	0.1	06/27/00	1205	1.90	0.13	1.65	0.16		0.15	0.92	2.00	3.07	0.42	0.12	90.0	141.0	
	0.1	07/19/00	1300	0.46	<0.05	0.21	0.07	0.12	0.02	0.37	1.43	1.82	0.59	0.10	93.0	110.0	
	0.1	08/15/00	1200	0.31	<0.05	0.65	0.05		U	0.02	2.10	2.12	0.43	0.12	70.0	99.0	
	0.1	09/12/00	1145	0.30	<0.05	0.13	0.06		0.06	U	1.20	1.26	0.20	0.10	32.0	33.0	
	0.1	10/17/00	1200	0.22					U	0.04	0.90	0.94	0.50	0.20	21.0	15.0	
	0.1	11/14/00	1215	0.07	<0.05	0.56	<0.04		0.03	0.80	1.10	1.93	0.30	0.20	18.0	7.7	
Mean				1.90	0.13	0.55	0.10		0.12	0.49	1.60	2.03	0.41	0.18	42.41	53.49	
RA-40	0.1	05/14/97	1045	1.04	<0.05	0.62	0.12		0.12	0.34	1.00	1.46	0.14	0.05		14.0	
	0.1	06/11/97	0955	0.88	<0.05	0.30	<0.04		0.17	0.17	0.80	1.14	0.10	0.07		18.0	
	0.1	06/25/97	0920	1.93	0.26	1.12	0.48					0.00				319.0	
	0.1	07/21/97	1050	0.70	<0.05	<0.05	0.70		0.21	1.03	3.70	4.94	0.28	0.26		384.0	
	0.1	08/17/97	1730	2.24	0.23	1.35	3.00		0.10	0.71	2.80	3.61	0.74	0.19		334.0	
	0.1	08/21/97	0950	1.42	0.09	0.67	0.31		0.03	0.29	1.70	2.02	0.41	0.16		117.0	
	0.1	09/15/97	0910	0.34	<0.05	0.08			0.37	0.33	1.90	2.60	0.31	0.09		49.0	
	0.1	10/15/97	0945	0.82	0.07	0.50	0.17		0.27	0.67	1.50	2.44	0.51	0.18		41.0	

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L	
RA-40	0.1	11/12/97	1015	0.25	0.06	0.10	<0.04		0.18	0.69	0.50	1.37	0.20	0.04		14.0		
Mean				1.07	0.14	0.59	0.80		0.18	0.53	1.74	2.18	0.34	0.13		143.33		
RA-40	0.1	03/16/98	1400	<0.05	<0.05	0.07	<0.04		<0.02	0.59	1.30	1.89	0.13	0.07		46.0		
	0.1	04/14/98	1130	0.20	<0.05	<0.05	0.08					0.00				176.0		
	0.1	05/14/98	0930	0.99	<0.05	0.91	0.82		0.08	0.22	0.70	1.00	0.05	0.04		24.0		
	0.1	05/22/98	1235	39.90	0.57	4.10	14.70		0.44	3.68	4.60	8.72	0.53	0.11		804.0		
	0.1	06/25/98	1050	2.73	0.17	0.65	1.56		0.07	0.77	0.80	1.64	0.12	0.09		38.0		
	0.1	07/22/98	1130	1.00	<0.05	0.22	0.30		0.10	0.30	1.20	1.60	0.09	0.05		41.0		
	0.1	08/18/98	1215	2.49	<0.05	0.15	0.44		0.07	0.14	0.80	1.01	0.17	0.04		21.0		
	0.1	09/14/98	1134	0.77	0.11	0.06	0.10		0.37	0.40	0.90	1.67	0.46	0.26				
	0.1	10/14/98	1440	0.65	<0.05	0.06	0.20		0.12	0.20	1.10	1.42	0.16	0.10				
	0.1	11/10/98	1330	0.27	<0.05	<0.05	0.09		0.21	0.85	1.30	2.36	0.28	0.20	95.0	108.0		
Mean					5.44	0.28	0.78	2.03		0.18	0.79	1.41	2.13	0.22	0.11	95.00	157.25	
RA-40	0.1	03/17/99	1425	0.12	<0.05	<0.05	<0.04		0.03	3.52	2.59	6.14	1.10	0.10	115.0	165.0		
	0.1	04/13/99	1420	0.08	<0.05	0.01	<0.04		0.40	U	0.51	0.91	0.15	0.07	12.0	9.0		
	0.1	05/11/99	1450	0.22	<0.05	<0.05	<0.04		0.09	0.78	1.01	1.88	0.43	0.05	26.0	19.0	2.2	
	0.1	06/11/99	1325	34.10	0.30	19.40	0.43		0.15	1.91	2.80	4.86	0.66	0.10	434.0	396.0		
	0.1	06/15/99	1330	11.30	0.08	3.65	0.18		1.79	0.68	2.92	5.39	0.45	0.29	69.0	74.0		
	0.1	07/13/99	1635	1.44	0.08	1.42	0.13		0.08	0.06	1.25	1.39	0.18	0.03	65.0	233.0		
	0.1	08/18/99	1500	1.30	<0.05	0.12	0.09		0.26	U	1.33	1.59	0.29	0.10	156.0	433.0		
	0.1	09/13/99	1430	0.21	<0.05	0.13	<0.04		U	U	1.44	1.44	0.23	0.03	47.0	75.0		
	0.1	10/13/99	1520	0.07	<0.05	0.07	<0.04		0.02	0.01	1.50	1.53	0.26	0.07	143.0	325.0		
	0.1	11/15/99	1445	0.06	<0.05	0.12	<0.04		U	0.02	0.86	0.88	0.21	0.10	30.0	28.0		
Mean					4.89	0.15	3.12	0.21		0.35	1.00	1.62	2.60	0.40	0.09	109.70	175.70	2.20
RA-40	0.1	03/28/00	1415	<0.05	<0.05	<0.05	<0.04		U	U	0.81	0.81	0.14	0.05	5.4	5.2		
	0.1	04/18/00	1545	<0.05	0.08	<0.05	<0.04		U	U	1.00	1.00	0.17	0.06	18.0	60.0		
	0.1	05/16/00	DRY															
	0.1	06/13/00	1500	2.35	<0.05	<0.05	0.07		0.83	U	3.00	3.83	0.35	0.08	170.0	533.0		
	0.1	06/27/00	1500	1.95	0.07	2.51	0.18		0.07	0.73	1.00	1.80	0.32	0.12	75.0	88.0		
	0.1	07/19/00	1600	0.33	<0.05	0.44	0.05	<0.04	0.09	0.35	1.10	1.54	0.25	0.07	21.0	26.0		
	0.1	08/15/00	1430	0.11	<0.05	0.06	<0.04		0.10	0.18	1.00	1.28	0.42	0.07	35.0	87.0		
	0.1	09/12/00	DRY						U	0.05	1.00	1.05	0.30	0.10	45.0	53.0		
	0.1	10/17/00	1430	0.09					1.01	0.92	2.90	4.83	0.49	0.38	13.0	13.0		
	0.1	11/14/00	1420	0.19	<0.05	0.09	<0.04		0.42	0.45	1.48	2.02	0.31	0.12	47.80	108.15		
Mean					0.84	0.08	0.78	0.10										
RA-41	0.1	05/12/97	1120	0.30	<0.05	<0.05	<0.04		0.17	0.46	1.00	1.63	0.05	0.04				
	0.1	06/09/97	1640	6.24	0.82	4.63	7.90		0.21	1.13	2.60	3.94	0.20	0.15		259.0		
	0.1	06/23/97	1620	20.60	0.84	3.75	4.20		0.02	0.63	1.40	2.05	0.12	0.06		75.0		
	0.1	07/21/97	1240	2.87	0.33	1.71	0.69		0.16	0.14	1.90	2.20	0.13	0.05		202.0		
	0.1	08/19/97	1050	1.10	0.11	0.31	0.23		0.16	0.60	1.80	2.56	0.34	0.15		160.0		
	0.1	09/15/97	1120	<0.05	<0.05	<0.05			0.06	0.09	0.50	0.65	0.37	0.05		15.0		
	0.1	10/14/97	1610	0.63	0.08	0.70			0.22	1.10	2.40	3.72	0.46	0.30		164.0		
	0.1	11/12/97	1230	0.18	<0.05	0.05	<0.04		0.04	0.34	0.50	0.88	0.19	0.04		17.0		
Mean					4.56	0.44	1.86	3.26		0.13	0.56	1.51	2.20	0.23	0.11		127.43	

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-41	0.1	03/16/98	1150	0.05	<0.05	0.06	<0.04		0.70	0.79	0.80	2.29	0.24	0.08		60.0	
	0.1	04/16/98	1015	0.14	0.08	0.07	0.06		0.07	0.46	1.00	1.53	0.13	0.09		266.0	
	0.1	05/14/98	0725	0.70	0.07	0.13	0.10		0.11	0.29	0.60	1.00	0.07	0.04		31.0	
	0.1	05/23/98	1025	30.10	0.54	12.90	0.60		0.45	2.66	3.30	6.41	0.34	0.08		531.0	
	0.1	06/23/98	1150	10.10	0.23	2.11	1.39		0.09	0.85	0.70	1.64	0.10	0.06		40.0	
	0.1	07/08/98	0910	4.27	0.21	1.79	0.45		0.35	1.57	1.00	2.92	0.36	0.15		264.0	
	0.1	07/21/98	1130	1.68	0.10	0.65	0.31		0.08	0.23	0.40	0.71	0.11	0.06		13.0	
	0.1	08/17/98	1100	0.85	<0.05	0.17	0.11		<0.02	0.02	0.40	0.42	0.18	0.04		8.0	
	0.1	09/15/98	0850	0.26	<0.05	0.08	<0.04		0.10	0.19	1.10	1.39	0.20	0.09			
	0.1	10/13/98	1130	0.48	0.05	0.12	0.06		0.21	0.75	1.00	1.96	0.21	0.11			
	0.1	11/10/98	0845	0.24	<0.05	0.05	<0.04		3.03	0.88	2.10	6.01	0.46	0.20	575.0	802.0	
	Mean			4.44	0.18	1.65	0.39		0.52	0.79	1.13	2.39	0.22	0.09	575.00	223.89	
RA-41	0.1	03/17/99	0840	0.15	<0.05	0.05	<0.04		0.03	3.52	2.59	6.14	1.10	0.10	510.0	952.0	
	0.1	04/13/99	0830	0.08	<0.05	<0.05	<0.04		0.09	0.96	0.46	1.51	0.11	0.06	33.0	48.0	
	0.1	05/11/99	0820	0.07	<0.05	0.07	<0.04		U	U	0.67	0.67	0.38	0.03	23.0	30.0	
	0.1	06/11/99	0805	41.50	0.22	4.63	0.36		0.36	1.91	6.35	8.62	2.19	0.08	2204.0	2508.0	
	0.1	06/15/99	0830	17.10	0.13	3.27	0.21		0.08	0.92	1.13	2.13	0.22	0.06	81.0	93.0	
	0.1	07/13/99	0912	1.72	0.09	1.03	0.09		0.14	0.38	0.80	1.32	0.11	0.02	35.0	55.0	
	0.1	08/18/99	0900	1.68	0.06	0.40	0.11		0.29	0.51	1.03	1.83	0.23	0.08	69.0	90.0	
	0.1	09/13/99	0830	1.17	<0.05	0.33	0.07		U	U	0.96	0.96	0.19	0.02	44.0	68.0	
	0.1	10/13/99	0910	0.76	<0.05	0.10	0.12		0.02	U	1.00	1.02	0.16	0.03	46.0	78.0	
	0.1	11/15/99	0910	0.47	0.05	0.21	<0.04		U	U	0.95	0.95	0.20	0.07	42.0	62.0	
	Mean			6.47	0.11	1.12	0.16		0.14	1.37	1.59	2.52	0.49	0.06	308.70	398.40	
RA-41	0.1	03/28/00	0845	0.10	<0.05	<0.05	<0.04		U	U	0.73	0.73	0.10	0.02	7.9	8.9	
	0.1	04/18/00	0840	0.09	0.07	0.07	<0.04		U	U	0.86	0.86	0.10	0.01	9.7	14.0	
	0.1	05/16/00	0850	<0.05	0.06	0.07	<0.04		U	U	1.00	1.00	0.09	0.01	14.0	11.0	
	0.1	06/13/00	0850	0.31	<0.05	<0.05	0.06		0.48	U	0.91	1.39	0.13	0.03	15.0	19.0	
	0.1	06/27/00	0900	3.62	0.17	2.96	0.20		0.15	3.30	2.00	5.45	0.46	0.14	120.0	161.0	
	0.1	07/19/00	0920	1.12	0.06	0.82	0.11	0.29	0.07	U	1.39	1.46	0.44	0.04	28.0	38.0	
	0.1	08/15/00	0910	0.48	<0.05	0.17	0.04		0.22	U	1.00	1.22	0.27	0.04	50.0	67.0	
	0.1	09/12/00	0900	0.27	<0.05	0.12	<0.04		U	U	0.95	0.95	0.20	0.04	83.0	176.0	
	0.1	10/17/00	0910	0.18					0.03	0.04	0.50	0.57	0.07	0.02	11.0	10.0	
	0.1	11/14/00	0910	0.10	<0.05	0.11	0.04		0.06	0.41	0.96	1.43	0.21	0.11	23.0	14.0	
	Mean			0.70	0.09	0.62	0.09		0.17	1.25	1.03	1.51	0.21	0.05	36.16	51.89	
RA-42	0.1	06/24/98	1050	8.70	0.18	1.67	0.70					0.00				48.0	
	0.1	07/07/98	1325	3.94	0.24	1.75	0.37		0.22	1.52	1.60	3.34	0.38	0.22		499.0	
	0.1	07/21/98	1215	1.26	0.05	0.54	0.14		0.04	0.03	0.60	0.67	0.19	0.05		19.0	
	0.1	08/17/98	1210	0.36	<0.05	0.13	0.07		0.07	0.09	0.80	0.96	0.25	0.05		87.0	
	0.1	09/14/98	1355	0.22	<0.05	0.10	<0.04		1.06	0.22	2.40	3.68	0.22	0.12			
	0.1	10/13/98	1245	0.21	<0.05	<0.05	<0.04		0.50	0.67	2.00	3.17	0.24	0.10			
	0.1	11/10/98	0915	0.30	<0.05	0.11	0.05		0.34	1.20	2.00	3.54	0.52	0.38	400.0	439.0	
RA-42	Mean			2.14	0.16	0.72	0.27		0.37	0.62	1.57	2.19	0.30	0.15	400.00	218.40	
	0.1	03/17/99	0930	0.15	<0.05	<0.05	<0.04		0.10	2.81	1.90	4.81	0.90	0.07	230.0	325.0	
RA-42	0.1	04/13/99	0910	0.10	<0.05	<0.05	<0.04		0.08	1.00	0.52	1.60	0.17	0.07	39.0	91.0	

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	ACET ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L	TURB NTU	TSS mg/L	CHL ug/L
RA-42	0.1	05/11/99	0900	0.05	<0.05	<0.05	<0.04		U	U	0.55	0.55	0.38	0.03	19.0	22.0	
	0.1	06/11/99	0845	53.40	0.48	20.10	0.56		0.26	3.02	4.64	7.92	1.17	0.17	821.0	782.0	
	0.1	06/15/99	0900	35.80	0.27	10.30	0.32		0.16	1.16	1.71	3.03	0.27	0.06	110.0	112.0	
	0.1	07/13/99	0952	2.69	0.11	1.32	0.16		0.06	1.15	2.02	3.23	0.22	0.02	35.0	95.0	
	0.1	08/18/99	0930	1.01	0.11	0.47	0.10		1.27	0.06	3.98	5.31	0.24	0.08	134.0	310.0	
	0.1	09/13/99	0910						0.08	0.06	1.78	1.92	0.24	0.02	215.0	457.0	
	0.1	10/13/99	0940	0.60	0.09	0.14	0.12		0.14	0.01	1.80	1.95	0.27	0.05	43.0	41.0	
Mean				11.73	0.21	6.47	0.25		0.27	1.16	2.10	3.37	0.43	0.06	182.89	248.33	
RA-42	0.1	03/28/00	0915	<0.05	<0.05	<0.05	<0.04		U	0.03	0.85	0.88	0.04	0.02	6.0	8.3	
	0.1	04/18/00	0930	<0.05	<0.05	0.32	<0.04		U	U	1.00	1.00	0.16	0.04	37.0	70.0	
	0.1	05/16/00	0920	0.25	0.07	<0.05	<0.04		U	U	1.00	1.00	0.36	0.06	42.0	93.0	
	0.1	06/13/00	0930	1.47	0.10	0.21	0.11		1.08	U	5.00	6.08	0.57	0.11	35.0	115.0	
	0.1	06/27/00	0915	3.35	0.18	2.63	0.19		0.16	3.66	2.00	5.82	0.44	0.19	93.0	111.0	
	0.1	07/19/00	1000	1.11	0.07	0.89	0.11	0.47	2.00	U	3.46	5.46	0.40	0.12	52.0	93.0	
	0.1	08/15/00	DRY														
	0.1	09/12/00	DRY														
	0.1	10/17/00	DRY														
	0.1	11/14/00	0930	0.06	<0.05	0.12	<0.04		0.02	0.40	1.90	2.32	0.40	0.20	69.0	32.0	
	Mean				1.25	0.11	0.83	0.14		0.82	1.36	2.17	3.22	0.34	0.11	47.71	74.61
RA-43	0.1	05/10/99	1530	0.79	0.11	0.11	0.07		0.47	4.18	0.75	5.40	0.10	0.07	15.0	15.0	1.6
	0.1	06/11/99	1300	48.50	0.53	19.40	1.23		0.33	4.29	2.07	6.69	0.32	0.11	159.0	113.0	
	0.1	06/15/99	1300	1.80	0.30	4.34	0.49		0.08	4.56	1.00	5.64	0.20	0.12	51.0	53.0	
	0.1	07/13/99	1440	2.44	0.23	1.18	0.21		0.06	0.15	1.20	1.41	0.15	0.02	23.0	32.0	26.9
	0.1	08/18/99	1430	1.05	0.10	0.48	0.10		0.17	1.94	1.68	3.79	0.25	0.09	33.0	41.0	34.7
	0.1	09/13/99	1345	0.97	0.12	0.45	0.10		0.10	0.15	1.04	1.29	0.15	0.04	11.0	16.0	0.9
	Mean			9.26	0.23	4.33	0.37		0.20	2.55	1.29	4.04	0.20	0.08	48.67	45.00	16.03
RA-43	0.1	03/28/00	1330	0.07	0.14	<0.05	<0.04		0.10	0.14	2.80	3.04	0.67	0.03	273.0	534.0	1.9
	0.1	04/18/00	1500	<0.05	0.18	0.26	<0.04		U	U	0.99	0.99	0.17	0.05	5.2	5.1	2.0
	0.1	05/16/00	1430	1.78	0.16	0.24	<0.04		0.23	U	2.00	2.23	0.22	0.05	13.0	10.0	1.0
	0.1	06/13/00	1415	4.48	0.14	0.74	0.10		0.94	0.21	2.00	3.15	0.34	0.13	6.7	6.7	1.4
	0.1	06/27/00	1420	3.36	0.12	2.68	0.20		0.10	6.70	1.00	7.80	0.29	0.14	42.0	39.0	
	0.1	07/19/00	1500	0.78	0.15	0.26	0.11	0.16	U	0.50	1.36	1.86	0.31	0.71	38.0	44.0	6.5
	0.1	08/15/00	1400	0.37	0.13	0.07	0.05		0.09	0.02	1.00	1.11	0.26	0.09	23.0	57.0	5.1
	0.1	09/12/00	DRY														
	0.1	10/17/00	1350	0.21					U	0.90	0.60	1.50	0.20	0.10	8.0	11.0	3.9
	0.1	11/14/00	1345	0.18	0.09	0.06	<0.04		0.07	6.00	1.10	7.17	0.14	0.10	8.0	3.7	0.4
Mean				1.40	0.14	0.62	0.12		0.26	2.07	1.43	3.21	0.29	0.16	46.32	78.94	2.78

Appendix Table 3. Chariton River Watershed Stream Data, 1999-2000.

STAT	DEPTH	DATE	TIME	SO4	TOC	DOC	TDS	VS	VSS (ISU)	IOSS (ISU)	T-FE	D-FE	T-MN	D-MN	COD	TALK	DISCH	SILICA
DET				10	0.2	0.2		5			40		1		3			
REP	m	mmddyy	hhmm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	cfs	mg/L
RA-12	0.1	03/17/99	1245				160		27	227						73	917.00	405.6
	0.1	04/13/99	1240				255		2	22						153	52.00	46.2
	0.1	05/10/99	1400	43		6.5	258	139								160	31.00	52.0
	0.1	05/11/99	1300				282			22								
	0.1	06/11/99	1145				117		73	813						64	575.00	841.8
	0.1	06/15/99	1145			6.7	227		132	1000	4335	U	156	50		136	53.00	287.8
	0.1	07/13/99	1330	41	7.31	7.6	296	117	0	23	904	U	402	319		176	5.30	25.5
	0.1	08/18/99	1300	33	6.1	6	267	83	9	36	2470	U	1250	948		175	2.60	53.8
	0.1	09/13/99	1240	40	6	6.4	308	92	6	21	1290	U	1490	1340		190	1.30	42.3
	0.1	10/13/99	1315	44	9.6	9.2	311	78	6	11	1650		2900			210	0.85	34.9
	0.1	11/15/99	1335	42	7.3	7.1	344	148	1	2	879		734		24		2.00	24.4
RA-12	0.1	03/28/00	1230	59	9	9	334	78	1.9	3.9	1245	172	968	893		193	1.59	13.3
	0.1	04/18/00	1345	57	9	9	406	206	0.2	4.4	1354	247	1006	853		200	1.48	16.2
	0.1	05/16/00	1330	40	10	6	319	104	13	20	3588	229	2623	1790		225	0.49	42.8
	0.1	06/13/00	1330	28	8	8	221	77	12	34	1923	U	1239	991		136	2.68	52.4
	0.1	06/27/00	1300	22	9.2		169	76	29	139	7015		914			91	230.00	62.8
	0.1	07/19/00	1400	36	9.6	8.1	359	153	9	64	1176	U	686	551		156	11.02	30.8
	0.1	08/15/00	1315	36	7.5	7.5	416	202	6	26	1349	U	1292	1137		170	3.81	35.8
	0.1	09/12/00	1215	38	7.2	7.7	291	85	3	8	514	U	1247	978		188	0.25	14.8
	0.1	10/17/00	1250	36	5.5	8.7	398	177	6	5	1483	84	2167	1978		178	33.01	20.2
	0.1	11/14/00	1300	32	10.7	10.6	271	60	4	14	2277		1158			160	5.79	27.5
RA-15	0.1	03/17/99	0745				158		40	335						81	1170.00	437.2
	0.1	04/13/99	0800				220		11	99						103	52.00	123.9
	0.1	05/10/99	1430	30		7.5	230	88			2870	U	340	248		144	58.00	90.9
	0.1	05/11/99	0800				253			81								
	0.1	06/11/99	0735				120		95	1158						67	1040.00	846.3
	0.1	06/15/99	0800			9	137		45	352	12292	U	431	12		92	112.00	667.7
	0.1	07/13/99	0840	21	9.38	9.57	171	95	19	79	3870	U	211	91.2		82	e17	66.2
	0.1	08/18/99	0830	14	6.7	8.3	190	113	15	42	2540	U	288	193		100	4.00	72.9
	0.1	09/13/99	0800	13	14.9	9.1	235	99	9	103	550	U	266	221		145	1.30	38.9
	0.1	10/13/99	0830	43	8.5	8.8	285	81	10	33	1610		555			138	1.50	37.2
	0.1	11/15/99	0835	17	13.2	13.2	338	145	8	8	1003		3790		41		1.30	31.2
RA-15	0.1	03/28/00	0800	38	10	10	283	68	19	35	469	65	116	98		175	0.70	7.6
	0.1	04/18/00	0800	37	11	11	366	184	1	11	1212	99	425	342		197	0.32	18.3
	0.1	05/16/00	0810	22	12	13	340	100	5	22	1461	384	1262	1240		228	0.11	26.7
	0.1	06/13/00	0820	20	10	10	280	102	6	19	2015	U	978	677		166	16.53	23.3
	0.1	06/27/00	0825	U	9.7		135	101	42	331	13793		566			61	496.56	143.9
	0.1	07/19/00	0835	20	9.9	10	327	156	10	60	2985	U	895	764		134	3.32	54.7
	0.1	08/15/00	0815	U	10.1	9.6	293	142	4	7	1319	75	543	428		140	1.17	22.4
	0.1	09/12/00	0815	13	9.8	10	359	102	7	28	2555	U	530	455		192	0.00	15.4
	0.1	10/17/00	0830	31	5.1	11.1	373	176	1.7	7.2	659	U	273	235		144	0.00	12.4
	0.1	11/14/00	0830	19	13.9	12.8	221	75	1.7	4.7	829		424			146	1.09	27.8

STAT	DEPTH	DATE	TIME	SO4	TOC	DOC	TDS (ISU)	VS	VSS (ISU)	IOSS (ISU)	T-FE	D-FE	T-MN	D-MN	COD	TALK	DISCH	SILICA
DET				10	0.2	0.2		5			40		1		3			
REP				20	1	1		10			120		4					
	m	mmddyy	hhmm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	cfs	mg/L
RA-32	0.1	03/17/99	1000				150		28	287					51	121.00	204.3	
	0.1	04/13/99	0940				256		7	46					163	2.10	83.8	
	0.1	05/11/99	0940				273			38					163	1.70	70.0	
	0.1	06/11/99	0915				117		109	847					48	e170	990.0	
	0.1	06/15/99	0930				199		21	168						7.30	378.8	
	0.1	07/13/99	1032				205		22	280					123	63.00	52.9	
	0.1	08/18/99	1000				192		13	88						2.20	97.1	
	0.1	09/13/99	0940				317		5	28						0.00	35.2	
	0.1	10/13/99	1025				310		8	26						0.00	42.1	
	0.1	11/15/99	1040						5	5						0.00	28.7	
RA-32	0.1	03/28/00	0945				327		1.3	3.9					0.14	7.7		
	0.1	04/18/00	1000				353		0.2	9.6					0.00	11.9		
	0.1	05/16/00	1000				331		15	19					0.46	22.8		
	0.1	06/13/00	1000				66		17	113						0.00	26.5	
	0.1	06/27/00	0945				139		11	71					79	25.74	65.3	
	0.1	07/19/00	1030				211		50	740						0.00	46.4	
	0.1	08/15/00	0950				209		5	27						0.00	25.5	
	0.1	09/12/00	0950				234		10	132						0.00	11.6	
	0.1	10/17/00	DRY															
	0.1	11/14/00	DRY															
RA-33	0.1	03/17/99	1020				153		21	191					54	65.00	405.9	
	0.1	04/13/99	1010				237		6	50					125	3.50	95.5	
	0.1	05/11/99	1000				259			17					166	1.40	43.2	
	0.1	06/11/99	0930				104		67	454					51	34.00	1043.4	
	0.1	06/15/99	0945				247		11	83						1.80	292.6	
	0.1	07/13/99	1050				106		7	33					112	191.00	46.2	
	0.1	08/18/99	1030				208		5	23						0.44	46.4	
	0.1	09/13/99	1000				290		1	9						0.11	18.1	
	0.1	10/13/99	1040				407		8	13						0.00	28.5	
	0.1	11/15/99	1100						3	7						0.01	33.1	
RA-33	0.1	03/28/00	1000				326		1.6	2.1					0.21	11.8		
	0.1	04/18/00	1030				323		0.2	2.5					0.11	16.0		
	0.1	05/16/00	1020				119		4	7						2.15	22.1	
	0.1	06/13/00	1020				306		3	10						0.25	24.3	
	0.1	06/27/00	1010				145		16	84					78	20.30	80.8	
	0.1	07/19/00	1100				248		5	12						0.14	27.1	
	0.1	08/15/00	1015				110		2	19						0.71	29.9	
	0.1	09/12/00	DRY				125		7	25								
	0.1	10/17/00	DRY													0.11	33.0	
	0.1	11/14/00	1010															
RA-34	0.1	03/17/99	0950				209		42	355					107	0.13	63.8	
	0.1	04/13/99	0950				240		2	15					174	0.00	53.0	
	0.1	05/11/99	1400				207			25					126	0.04	57.0	
	0.1	06/11/99	1235				186		34	28					119	0.04	157.6	
	0.1	06/15/99	1230				323		4	11						0.00	199.3	

STAT	DEPTH	DATE	TIME	SO4	TOC	DOC	TDS (ISU)	VS	VSS (ISU)	IOSS (ISU)	T-FE	D-FE	T-MN	D-MN	COD	TALK	DISCH	SILICA
DET				10	0.2	0.2		5			40		1		3			
REP	m	mmddyy	hhmm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	cfs	mg/L
RA-34	0.1	07/13/99	1600				179		2	24					336	0.00	27.3	
	0.1	08/18/99	1400				380		3	34						0.00	62.4	
RA-34	0.1	03/28/00	DRY													0.00	26.7	
	0.1	04/18/00	1430				361		184	89								
	0.1	05/16/00	DRY															
	0.1	06/13/00	DRY															
	0.1	06/27/00	1400				145		5	14					78	0.00	49.2	
	0.1	07/19/00	DRY															
	0.1	08/15/00	DRY															
	0.1	09/12/00	DRY															
	0.1	10/17/00	DRY															
	0.1	11/14/00	DRY															
RA-35	0.1	03/17/99	1120				181		18	214					78	89.00	174.6	
	0.1	04/13/99	1110				245		3	18					152	5.90	44.3	
	0.1	05/11/99	1105				263			31					154	2.80	65.2	
	0.1	06/11/99	1020				160		103	855					75	23.00	930.4	
	0.1	06/15/99	1030				191		15	95						9.10	324.5	
	0.1	07/13/99	1153				224		12	18					156	198.00	46.8	
	0.1	08/18/99	1130				176		4	59						5.00	63.6	
	0.1	09/13/99	1100				205		7	45						0.12	75.2	
	0.1	10/13/99	1150				246		14	26						0.00	49.3	
RA-35	0.1	03/28/00	1100				356		0.7	2.2						1.45	7.8	
	0.1	04/18/00	1145				382		0.4	3.3						0.00	11.8	
	0.1	05/16/00	1130				369		5	28						0.00	57.9	
	0.1	06/13/00	1130				232		15	41						2.05	41.4	
	0.1	06/27/00	1130				152		12	84					102	24.54	77.3	
	0.1	07/19/00	1200				216		9	31						0.00	41.3	
	0.1	08/15/00	1110				173		5	28						0.00	42.0	
	0.1	09/12/00	DRY															
	0.1	10/17/00	1050				226		11	17						0.78	24.6	
	0.1	11/14/00	1115				103		5	10						0.00	26.3	
RA-36	0.1	03/17/99	1100				181		14	174					69	41.00	207.9	
	0.1	04/13/99	1040				232		2	13					154	5.40	42.8	
	0.1	05/11/99	1045				273			9					180	1.40	45.5	
	0.1	06/11/99	1005				120		80	618					67	42.00	757.8	
	0.1	06/15/99	1015				79		3	65						15.00	223.6	
	0.1	07/13/99	1134				235		0	31					158	0.00	34.9	
	0.1	08/18/99	1100				11		0	18						0.23	36.1	
	0.1	09/13/99	1035				286		3	12						0.00	22.8	
	0.1	10/13/99	1125				341		0	2						0.04	26.3	
	0.1	11/15/99	1140						20	15						0.02	26.1	
RA-36	0.1	03/28/00	1040				344		1.6	2.3						0.07	12.7	
	0.1	04/18/00	1115				322		1.4	7.4						0.04	15.6	
	0.1	05/16/00	1100				345		3.7	5.4						0.04	22.3	

STAT	DEPTH	DATE	TIME	SO4	TOC	DOC	TDS (ISU)	VS	VSS (ISU)	IOSS (ISU)	T-FE	D-FE	T-MN	D-MN	COD	TALK	DISCH	SILICA
DET				10	0.2	0.2		5			40		1		3			
REP				20	1	1		10			120		4					
	m	mmddyy	hhmm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	cfs	mg/L
RA-36	0.1	06/13/00	1145				104		1.8	4.9						1.77	17.8	
	0.1	06/27/00	1100				151		9	51					101	4.45	91.0	
	0.1	07/19/00	1130				217		7	29						0.18	31.8	
	0.1	08/15/00	DRY															
	0.1	09/12/00	DRY															
	0.1	10/17/00	1030				232		1.5	1.5						0.00	18.1	
	0.1	11/14/00	1045				81		8	28						0.11	54.7	
RA-37	0.1	03/17/99	1230				170		13	209					71	62.00	315.5	
	0.1	04/13/99	1220				270		2	10					156	4.80	26.1	
	0.1	05/11/99	1240				238			28					146	2.20	77.7	
	0.1	06/11/99	1125				132		48	410					76	47.00	451.2	
	0.1	06/15/99	1130				271		4	28						4.30	196.2	
	0.1	07/13/99	1310				277		3	22					188	2.60	32.6	
	0.1	08/18/99	1230				258		6	59						0.06	43.2	
	0.1	09/13/99	1210				372		2	13						0.00	30.4	
	0.1	10/13/99	1300				422		3	8						0.00	29.4	
	0.1	11/15/99	1310						0	5						0.00	14.1	
RA-37	0.1	03/28/00	1210				378		2.2	5.4						0.18	12.9	
	0.1	04/18/00	1315				393		0.7	2.9						0.32	14.0	
	0.1	05/16/00	1300				153		3	25						0.04	38.7	
	0.1	06/13/00	1300				308		14	30						0.00	42.7	
	0.1	06/27/00	1240				62		12	52					121	6.50	55.7	
	0.1	07/19/00	1345				269		10	35						0.00	38.2	
	0.1	08/15/00	1300				205		10	30						0.07	40.8	
	0.1	09/12/00	DRY															
	0.1	10/17/00	1225				197		6	8						0.04	17.2	
	0.1	11/14/00	1230				158		3	10						0.32	28.6	
RA-38	0.1	03/17/99	1300				208		17	310					96	60.00	316.3	
	0.1	04/13/99	1305				331		2	9					21	79.00	28.0	
	0.1	05/11/99	1330				334		13	140					197	11.00	78.4	
	0.1	06/11/99	1200				156		48	377					90	43.00	461.3	
	0.1	06/15/99	1215				312		5	31						8.40	175.1	
	0.1	07/13/99	1355				300		7	18					194	2.80	38.5	
	0.1	08/18/99	1330				226		8	51						0.28	43.3	
RA-38	0.1	03/28/00	1300				457		1.1	9.2						0.00	20.3	
	0.1	04/18/00	1415				484		2	51						0.00	32.2	
	0.1	05/16/00	1350				418		2.8	4.4						0.00	12.2	
	0.1	06/13/00	1400				215		3	10						0.35	14.1	
	0.1	06/27/00	1330				191		9	43					150	3.21	64.9	
	0.1	07/19/00	1430				347		5	15						0.00	33.0	
	0.1	08/15/00	1345				234		4	14						0.00	33.1	
	0.1	09/12/00	DRY															
	0.1	10/17/00	1320				293		0.9	4.4						0.00	19.4	
	0.1	11/14/00	1320				231		1.1	2.5						0.00	18.8	

STAT	DEPTH	DATE	TIME	SO4	TOC	DOC	TDS (ISU)	VS	VSS (ISU)	IOSS (ISU)	T-FE	D-FE	T-MN	D-MN	COD	TALK	DISCH	SILICA	
DET				10	0.2	0.2		5			40		1		3				
REP				20	1	1		10			120		4						
	m	mmddyy	hhmm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	cfs	mg/L	
RA-39	0.1	03/17/99	1200				188		21	699						89	228.00	205.1	
	0.1	04/13/99	1155				251		3	17						151	12.00	36.3	
	0.1	05/11/99	1200				272		3	18						166	7.90	64.2	
	0.1	06/11/99	1100				168		35	264						100	57.00	515.1	
	0.1	06/15/99	1100				244		10	65							264.00	204.0	
	0.1	07/13/99	1241				88		3	29						164	99.00	52.4	
	0.1	08/18/99	1200				265		10	62							0.18	74.2	
	0.1	09/13/99	1135				361		19	24							0.00	82.9	
	0.1	10/13/99	1230				383		14	24							0.00	72.3	
	0.1	11/15/99	1240						9	12							0.00	46.9	
RA-39	0.1	03/28/00	1145				520		3.8	2.5							0.18	6.3	
	0.1	04/18/00	1245				456		5	6							0.00	36.3	
	0.1	05/16/00	1230						3	47							0.07	32.2	
	0.1	06/13/00	1230				213		13	57							1.20	59.9	
	0.1	06/27/00	1205				151		16	109						130	28.32	71.3	
	0.1	07/19/00	1300				248		28	60							5.72	71.2	
	0.1	08/15/00	1200				253		11	39							0.11	44.7	
	0.1	09/12/00	1145				354		3	27							0.04	11.5	
	0.1	10/17/00	1200				318		4	8							0.07	25.2	
	0.1	11/14/00	1215				190		3	9							0.39	23.4	
RA-40	0.1	03/17/99	1425				170		10	233							94	32.00	174.6
	0.1	04/13/99	1420				288		2	5							170	56.00	26.5
	0.1	05/10/99	1500	32		6.2		66									158	4.00	72.5
	0.1	05/11/99	1450				271		3	20									
	0.1	06/11/99	1325				138		46	271							24.00	634.2	
	0.1	06/15/99	1330				373		12	67							6.40	215.6	
	0.1	07/13/99	1635				312		28	233						188	15.00	46.7	
	0.1	08/18/99	1500				385		4	21							0.22	69.8	
	0.1	09/13/99	1430				303		20	79							0.00	60.1	
	0.1	10/13/99	1520				336		9	74							0.00	57.5	
	0.1	11/15/99	1445						5	19							0.00	43.0	
RA-40	0.1	03/28/00	1415				473		1.9	2.8							0.35	12.9	
	0.1	04/18/00	1545				432		5	14							0.18	31.3	
	0.1	05/16/00	DRY																
	0.1	06/13/00	1500				328		21	200						103	0.00	64.1	
	0.1	06/27/00	1500				129		11	54							9.92	71.6	
	0.1	07/19/00	1600				305		5	21							0.00	30.0	
	0.1	08/15/00	1430				215		7	30							0.35	50.8	
	0.1	09/12/00	DRY																
	0.1	10/17/00	1430				362		4	38							0.00	32.5	
	0.1	11/14/00	1420				234		4	7							0.00	24.1	
RA-41	0.1	03/17/99	0840				145		3	19							53	e569	566.9
	0.1	04/13/99	0830				263		5	39							150	11.00	61.7
	0.1	05/11/99	0820				302		4	25							185	2.20	56.7
	0.1	06/11/99	0805				106		58	510							58	e749	982.0

STAT	DEPTH	DATE	TIME	SO4	TOC	DOC	TDS (ISU)	VS	VSS (ISU)	IOSS (ISU)	T-FE	D-FE	T-MN	D-MN	COD	TALK	DISCH	SILICA
DET				10	0.2	0.2		5			40		1		3			
REP	m	mmddyy	hhmm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	cfs	mg/L
RA-41	0.1	06/15/99	0830					13	84							7.40	237.7	
	0.1	07/13/99	0912				263	7	44						173	970.00	58.4	
	0.1	08/18/99	0900				215	4	84							1.40	98.4	
	0.1	09/13/99	0830				275	8	55							0.00	71.3	
	0.1	10/13/99	0910				326	9	47							0.00	59.7	
	0.1	11/15/99	0910					13	45							0.00	67.6	
RA-41	0.1	03/28/00	0845				350	0.2	4.9							0.28	16.6	
	0.1	04/18/00	0840				355	0.2	9.2							0.00	17.8	
	0.1	05/16/00	0850				374	9	7							5.72	30.8	
	0.1	06/13/00	0850				332	3	13							0.00	31.8	
	0.1	06/27/00	0900				145	21	111						85	4.84	99.1	
	0.1	07/19/00	0920				230	7	27							0.49	33.7	
	0.1	08/15/00	0910				221	11	56							0.00	25.3	
	0.1	09/12/00	0900				262	9	48							0.00	9.5	
	0.1	10/17/00	0910				199	2.2	7.1							0.00	14.7	
	0.1	11/14/00	0910				163	7	11							0.00	28.9	
RA-42	0.1	03/17/99	0930				180	8	123							66	12.00	285.8
	0.1	04/13/99	0910				254	6	64							147	381.00	68.4
	0.1	05/11/99	0900				293	4	18							181	0.60	53.3
	0.1	06/11/99	0845				112	46	339							53	e266	1021.4
	0.1	06/15/99	0900					4	34								1.60	272.7
	0.1	07/13/99	0952				263	31	429							166	15.00	106.8
	0.1	08/18/99	0930				249	11	256								0.11	135.7
	0.1	09/13/99	0910				208	7	74								0.00	42.3
	0.1	10/13/99	0940				313	10	33								0.00	178.6
	0.1	11/15/99						NA	NA								0.00	38.4
RA-42	0.1	03/28/00	0915				347	1.6	2.9								0.14	7.4
	0.1	04/18/00	0930				352	3	39								0.00	42.3
	0.1	05/16/00	0920					10	22								0.00	35.4
	0.1	06/13/00	0930				314	17	42								0.00	36.3
	0.1	06/27/00	0915				171	15	77							100	2.58	98.8
	0.1	07/19/00	1000				270	22	232								0.14	36.0
	0.1	08/15/00	DRY															
	0.1	09/12/00	DRY															
	0.1	10/17/00	DRY															
	0.1	11/14/00	0930				109	8	35								0.00	56.2
RA-43	0.1	05/10/99	1530	6.7	6.4		52			891	U	285	266			144		
	0.1	06/11/99	1300				168	16	110							80	6.30	334.9
	0.1	06/15/99	1300		5.4	249		4	46	2102	U	201	149			126	0.99	202.0
	0.1	07/13/99	1440	27	8.53	8.8	267	105	8	26	1090	U	411	284		162	0.00	36.5
	0.1	08/18/99	1430	24	9.5	178	79	1	43	952	U	348	108			90	0.17	50.4
	0.1	09/13/99	1345	18	8.6	9	235	90	3	12	570	U	432	337		136	0.00	24.4

STAT	DEPTH	DATE	TIME	SO4	TOC	DOC	TDS (ISU)	VS	VSS (ISU)	IOSS (ISU)	T-FE	D-FE	T-MN	D-MN	COD	TALK	DISCH	SILICA
DET				10	0.2	0.2		5			40		1		3			
REP	m	mmddyy	hhmm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	cfs	mg/L
RA-43	0.1	03/28/00	1330	36	11	12	325	93	49	549	14623	U	1711	1177	165	6.67	124.5	
	0.1	04/18/00	1500	22	11	11	342	185	0.2	3.1	671	86	283	196	225	0.00	10.8	
	0.1	05/16/00	1430	13	13	13	329	60	9	13	835	138	743	699	210	0.21	31.3	
	0.1	06/13/00	1415	12	12	12	300	99	0.8	5.1	1198	100	1866	1629	195	0.00	22.4	
	0.1	06/27/00	1420	U	7.4		163	123	7	30	1569		285		85	0.99	70.7	
	0.1	07/19/00	1500	17	8.1	10.3	228	159	9	33	1277	U	418	317	145	0.00	39.8	
	0.1	08/15/00	1400	11	10.6	9.2	266	205	8	51	1057	U	1888	1663	196	0.00	21.0	
	0.1	09/12/00	DRY															
	0.1	10/17/00	1350	32	5.6	11	230	202	2	2.7	229	U	235	105	152	0.00	22.7	
	0.1	11/14/00	1345	29	8.2	8.1	176	80	2.2	4.5	323		76		125	0.00	25.8	

Appendix Table 4. Chariton River Watershed Stream Data, 1999-2000.

STAT	DEPTH m	DATE mmddyy	TIME hhmm	FC /100ml	TC /100ml	TC MPN/100ml	ECLI /100ml	ECI MPN/100ml	FENT /100ml	FENT MPN/100ml	Cl mg/L	Caffeine ng/L
RA-12	0.1	03/17/99	1245	300		420			270			
	0.1	04/13/99	1240	200		200			64			
	0.1	05/11/99	1300		1500	330			330			
	0.1	06/11/99	1145			>2400		>2400		>2400		
	0.1	06/15/99	1145			58000		740		510		
	0.1	07/13/99	1330			8700		100		30		
	0.1	08/18/99	1300			28000		1300		<100	3.2	<40
	0.1	09/13/99	1240			12000		470		63		
	0.1	10/13/99	1315			>24000		210		63	3.0	
	0.1	11/15/99	1335			1000		31		10	3.0	
RA-12	0.1	03/28/00	1230			2100		41		10	43.5	
	0.1	04/18/00	1345			990		10		<10	44.4	
	0.1	05/16/00	1330			5200		<10		30	33.4	
	0.1	06/13/00	1330			17000		360		85	33.2	
	0.1	06/27/00	1300			>24000		930		97	24.4	
	0.1	07/19/00	1400			24000		930		180	23.0	
	0.1	08/15/00	1315			14000		390		<10	e64.0	
	0.1	09/12/00	1215			10000		85		30.2		e18
	0.1	10/17/00	1250			1400		86		<10	26.6	
	0.1	11/14/00	1300			20000		850		31	41.2	
RA-15	0.1	03/17/99	0745	420		340			630			
	0.1	04/13/99	0800	470		460			100			
	0.1	05/11/99	0800		600	30			70			
	0.1	06/11/99	0735			>2400		>2400		>2400		
	0.1	06/15/99	0800			100000		1600		1300		
	0.1	07/13/99	0840			>24000		340		220		
	0.1	08/18/99	0830			24000		630		310	2.3	<40
	0.1	09/13/99	0800			14000		300		210		
	0.1	10/13/99	0830			3900		310		200	7.3	
	0.1	11/15/99	0835			1000		52		110	7.8	
RA-15	0.1	03/28/00	0800			1200		<10		<10	42.3	
	0.1	04/18/00	0800			470		10		<10	43.4	
	0.1	05/16/00	0810			2600		110		10	46.3	
	0.1	06/13/00	0820			6900		190		20	52.0	
	0.1	06/27/00	0825			>24000		2100		170	10.7	
	0.1	07/19/00	0835			>24000		1300		710	35.1	
	0.1	08/15/00	0815			8700		63		<10	24.9	
	0.1	09/12/00	0815			>24000		930		31	e63.7	<40
	0.1	10/17/00	0830			3800		86		150	38.9	
	0.1	11/14/00	0830			1600		20		<10	36.2	
RA-16	0.1	08/17/99			14							
RA-16	0.1	05/15/00			1							
RA-18	0.1	06/14/99			11							
	0.1	07/12/99			45							
	0.1	08/17/99			10							
RA-18	0.1	05/15/00			1							
RA-20	0.1	06/14/99			18							
	0.1	07/12/99			80							
	0.1	08/17/99			19							
RA-20	0.1	05/15/00			7							
RA-30	0.1	07/12/99			20							
	0.1	08/17/99			16							
	0.1	08/17/99			18							
RA-31	0.1	06/14/99			80							
	0.1	07/12/99			0							
	0.1	08/17/99			18							

STAT	DEPTH m	DATE mmddy	TIME hhmm	FC /100ml	TC /100ml	TC MPN/100ml	ECLI /100ml	ECI MPN/100ml	FENT /100ml	FENT MPN/100ml	Cl mg/L	Caffeine ng/L
RA-31	0.1	05/15/00		30								
RA-32	0.1	03/17/99	1000	150			110		260			
	0.1	04/13/99	0940	470			460		45			
	0.1	05/11/99	0940		900		200		110			
	0.1	06/11/99	0915			>2400		>2400		>2400		
	0.1	06/15/99	0930			73000		740		310		
	0.1	07/13/99	1032			>24000		210		250		
	0.1	08/18/99	1000			58000		850		1900	2.6	<40
	0.1	09/13/99	0940			>24000		51		260		
	0.1	10/13/99	1025			2100		210		30	3.2	
	0.1	11/15/99	1040			350		10		41	2.7	
RA-32	0.1	03/28/00	0945			2100		230		10	44.5	
	0.1	04/18/00	1000			2500		41		<10	45.2	
	0.1	05/16/00	1000			2800		<10		20	44.4	
	0.1	06/13/00	1000			>24000		52		<10	49.1	
	0.1	06/27/00	0945			>24000		260		30	23.2	
	0.1	07/19/00	1030			>24000		1300		640	27.8	
	0.1	08/15/00	0950			>24000		170		120	24.0	
	0.1	09/12/00	0950			>24000		30		10	34.3	<40
	0.1	10/17/00	DRY									
	0.1	11/14/00	DRY									
RA-33	0.1	03/17/99	1020	200			450		330			
	0.1	04/13/99	1010	230			370		120			
	0.1	05/11/99	1000		910		100		90			
	0.1	06/11/99	0930			>2400		>2400		>2400		
	0.1	06/15/99	0945			65000		970		1200		
	0.1	07/13/99	1050			>24000		490		540		
	0.1	08/18/99	1030			25000		300		200	0.7	<40
	0.1	09/13/99	1000			2200		74		63		
	0.1	10/13/99	1040			4000		62		<10	2.8	
	0.1	11/15/99	1100			1300		<10		10	2.5	
RA-33	0.1	03/28/00	1000			2700		41		10	37.0	
	0.1	04/18/00	1030			790		10		10	35.5	
	0.1	05/16/00	1020			12000		10		<10	33.0	
	0.1	06/13/00	1020			6100		41		20	32.9	
	0.1	06/27/00	1010			>24000		500		52	18.4	
	0.1	07/19/00	1100			13000		320		150	21.3	
	0.1	08/15/00	1015			>24000		460		130	21.8	
	0.1	09/12/00	DRY									
	0.1	10/17/00	DRY									
	0.1	11/14/00	1010			4600		63		10	27.9	
RA-34	0.1	03/17/99	1345	55			30		150			
	0.1	04/13/99	1345	260			180		40			
	0.1	05/11/99	1400		2100		930		1300			
	0.1	06/11/99	1235			>2400		820		2000		
	0.1	06/15/99	1230			44000		4400		1900		
	0.1	07/13/99	1600			14000		1600		1100		
	0.1	08/18/99	1400			130000		1600		6500	3.5	26E
RA-34	0.1	03/28/00	DRY									
	0.1	04/18/00	1430			>24000		1000		200	27.9	
	0.1	05/16/00	DRY									
	0.1	06/13/00	DRY									
	0.1	06/27/00	1400			>24000		1300		780	40.8	
	0.1	07/19/00	DRY									
	0.1	08/15/00	DRY									
	0.1	09/12/00	DRY									
RA-35	0.1	10/17/00	DRY									
	0.1	11/14/00	DRY									
	0.1	03/17/99	1120	40			100		250			
RA-35	0.1	04/13/99	1110	350			350		60			
	0.1	05/11/99	1105		1400		400		200			

STAT	DEPTH m	DATE mmddyy	TIME hhmm	FC /100ml	TC /100ml	TC MPN/100ml	ECLI /100ml	ECI MPN/100ml	FENT /100ml	FENT MPN/100ml	Cl mg/L	Caffeine ng/L
RA-35	0.1	06/11/99	1020			>2400		>2400		>2400		
	0.1	06/15/99	1030			41000		630		730		
	0.1	07/13/99	1153			6900		100		10		
	0.1	08/18/99	1130			26000		200		100	1.3	<40
	0.1	09/13/99	1100			7300		620		160		
	0.1	10/13/99	1150			1600		85		20	0.2	
RA-35	0.1	03/28/00	1100			1000		<10		<10	50.5	
	0.1	04/18/00	1145			1200		10		<10	51.3	
	0.1	05/16/00	1130			5800		<10		52	46.2	
	0.1	06/13/00	1130			4900		10		<10	33.7	
	0.1	06/27/00	1130			>2400		1500		110	23.4	
	0.1	07/19/00	1200			17000		260		190	23.8	
	0.1	08/15/00	1110			20000		680		84	18.7	
	0.1	09/12/00	DRY									
	0.1	10/17/00	1050			2400		150		31	38.8	
	0.1	11/14/00	1115			4400		98		20	45.6	
RA-36	0.1	03/17/99	1100	570			280		240			
	0.1	04/13/99	1040	91			170		140			
	0.1	05/11/99	1045		2000		540		240			
	0.1	06/11/99	1005			>2400		>2400		>2400		
	0.1	06/15/99	1015			49000		970		100		
	0.1	07/13/99	1134			14000		450		40		
	0.1	08/18/99	1100			12000		1200		<100	2.1	20E
	0.1	09/13/99	1035			24000		250		41		
	0.1	10/13/99	1125			5200		350		280	2.1	
	0.1	11/15/99	1140			2100		350		110	0.8	
RA-36	0.1	03/28/00	1040			1700		10		20	44.7	
	0.1	04/18/00	1115			4400		130		97	42.2	
	0.1	05/16/00	1100			2300		10		85	32.5	
	0.1	06/13/00	1145			13000		370		160	41.5	
	0.1	06/27/00	1100			24000		270		31	24.4	
	0.1	07/19/00	1130			20000		1000		460	26.4	
	0.1	08/15/00	DRY									
	0.1	09/12/00	DRY									
	0.1	10/17/00	1030			9100		150		74	36.8	
	0.1	11/14/00	1045			12000		200		10	39.6	
RA-37	0.1	03/17/99	1230	370			490		260			
	0.1	04/13/99	1220	380			330		40			
	0.1	05/11/99	1240		1300		520		220			
	0.1	06/11/99	1125			>2400		>2400		>2400		
	0.1	06/15/99	1130			25000		200		200		
	0.1	07/13/99	1310			>24000		50		190		
	0.1	08/18/99	1230			25000		1300		100	1.8	43
	0.1	09/13/99	1210			7300		41		85		
	0.1	10/13/99	1300			11000		20		51	0.2	
	0.1	11/15/99	1310			3100		<10		<10	0.1	
RA-37	0.1	03/28/00	1210			1900		<10		<10	26.4	
	0.1	04/18/00	1315			9800		<10		<10	27.0	
	0.1	05/16/00	1300			3100		190		<10	24.3	
	0.1	06/13/00	1300			>24000		280		10	35.2	
	0.1	06/27/00	1240			>24000		730		10	16.6	
	0.1	07/19/00	1345			17000		910		20	16.6	
	0.1	08/15/00	1300			16000		120		52	8.8	
	0.1	09/12/00	DRY									
	0.1	10/17/00	1225			5000		31		<10	24.9	
	0.1	11/14/00	1230			24000		750		63	35.0	
RA-38	0.1	03/17/99	1300	330			260		270			
	0.1	04/13/99	1305	240			250		210			
	0.1	05/11/99	1330		17000		4100		4800			
	0.1	06/11/99	1200			>2400		>2400		>2400		
	0.1	06/15/99	1215			41000		630		740		
	0.1	07/13/99	1355			20000		60		20		

STAT	DEPTH m	DATE mmddy	TIME hhmm	FC /100ml	TC /100ml	TC MPN/100ml	ECLI /100ml	ECI MPN/100ml	FENT /100ml	FENT MPN/100ml	Cl mg/L	Caffeine ng/L
RA-38	0.1	08/18/99	1330		22000		100		<100	2.3	<40	
RA-38	0.1	03/28/00	1300		5500		10		10	39.7		
	0.1	04/18/00	1415		14000		95		30	33.8		
	0.1	05/16/00	1350		6500		31		<10	31.4		
	0.1	06/13/00	1400		8200		330		31	31.3		
	0.1	06/27/00	1330		>24000		380		63	19.5		
	0.1	07/19/00	1430		>24000		>24000		2000	28.6		
	0.1	08/15/00	1345		>24000		160		20	25.9		
	0.1	09/12/00	DRY									
	0.1	10/17/00	1320		5800		41		<10	32.1		
	0.1	11/14/00	1320		5200		200		20	40.1		
RA-39	0.1	03/17/99	1200	130		82		150				
	0.1	04/13/99	1155	100		160		30				
	0.1	05/11/99	1200		1100	240		160				
	0.1	06/11/99	1100		>2400		>2400		>2400			
	0.1	06/15/99	1100		34000		200		520			
	0.1	07/13/99	1241		<10		<10		<10			
	0.1	08/18/99	1200		44000		1700		630	5.8	39E	
	0.1	09/13/99	1135		>24000		7300		1100			
	0.1	10/13/99	1230		4900		610		10	6.0		
	0.1	11/15/99	1240		8200		180		210	7.7		
RA-39	0.1	03/28/00	1145		1700		41		<10	e65.7		
	0.1	04/18/00	1245		24000		140		72	e61.2		
	0.1	05/16/00	1230		>24000		1300		570	52.1		
	0.1	06/13/00	1230		20000		700		170	42.5		
	0.1	06/27/00	1205		>24000		1100		140	33.0		
	0.1	07/19/00	1300		>24000		3100		1700	37.7		
	0.1	08/15/00	1200		24000		1500		160	42.4		
	0.1	09/12/00	1145		17000		400		20	56.7	<40	
	0.1	10/17/00	1200		5300		150		63	50.1		
	0.1	11/14/00	1215		9200		300		74	50.0		
RA-40	0.1	03/17/99	1425	110		91		100				
	0.1	04/13/99	1420	20		27		10				
	0.1	05/11/99	1450		1300	410		170				
	0.1	06/11/99	1325		>2400		>2400		>2400			
	0.1	06/15/99	1330		73000		1600		1100			
	0.1	07/13/99	1635		>24000		930		420			
	0.1	08/18/99	1500		25000		1500		<100	8.3	<40	
	0.1	09/13/99	1430		1600		510		63			
	0.1	10/13/99	1520		>24000		1200		20	2.6		
	0.1	11/15/99	1445		7300		170		130	4.3		
RA-40	0.1	03/28/00	1415		4000		20		<10	53.0		
	0.1	04/18/00	1545		1300		<10		61	53.3		
	0.1	06/13/00	1500		14000		1200		320	e58.7		
	0.1	06/27/00	1500		>24000		790		200	15.8		
	0.1	07/19/00	1600		>24000		200		200	35.7		
	0.1	08/15/00	1430		>24000		180		52	23.6		
	0.1	09/12/00	DRY									
	0.1	10/17/00	1430		>24000		610		160	48.4		
	0.1	11/14/00	1420		20000		1800		10	51.8		
RA-41	0.1	03/17/99	0840	430		280		380				
	0.1	04/13/99	0830	250		280		110				
	0.1	05/11/99	0820		500	300		130				
	0.1	06/11/99	0805		>2400		>2400		>2400			
	0.1	06/15/99	0830		37000		410		520			
	0.1	07/13/99	0912		12000		190		100			
	0.1	08/18/99	0900		29000		1600		200	2.5	<40	
	0.1	09/13/99	0830		5800		270		63			
	0.1	10/13/99	0910		2200		200		10	0.9		
	0.1	11/15/99	0910		620		31		10	0.6		

STAT	DEPTH m	DATE mmddyy	TIME hhmm	FC /100ml	TC /100ml	TC MPN/100ml	ECLI /100ml	ECI MPN/100ml	FENT /100ml	FENT MPN/100ml	Cl mg/L	Caffeine ng/L
RA-41	0.1	03/28/00	0845		2300		10		10		34.7	
	0.1	04/18/00	0840		13000		10		31		32.6	
	0.1	05/16/00	0850		>24000		31		20		30.1	
	0.1	06/13/00	0850		24000		86		31		33.2	
	0.1	06/27/00	0900		>24000		1100		110		19.4	
	0.1	07/19/00	0920		24000		380		160		22.8	
	0.1	08/15/00	0910		13000		86		63		23.4	
	0.1	09/12/00	0900		>24000		170		10		26.2	<40
	0.1	10/17/00	0910		2800		290		130		17.4	
	0.1	11/14/00	0910		2300		97		10		41.6	
RA-42	0.1	03/17/99	0930	560		650		290				
	0.1	04/13/99	0910	810		760		370				
	0.1	05/11/99	0900		1500		470		180			
	0.1	06/11/99	0845		>2400		>2400		>2400			
	0.1	06/15/99	0900		46000		980		1200			
	0.1	07/13/99	0952		>24000		570		60			
	0.1	08/18/99	0930		34000		520		310		4.4	<40
	0.1	09/13/99	0910		8700		150		74			
	0.1	10/13/99	0940		10000		110		210		2.4	
	0.1	11/15/99									0.3	
RA-42	0.1	03/28/00	0915		1200		20		<10		35.4	
	0.1	04/18/00	0930		2700		260		10		40.1	
	0.1	05/16/00	0920		>24000		430		190		31.4	
	0.1	06/13/00	0930		4400		<10		<10		34.3	
	0.1	06/27/00	0915		>24000		1000		51		28.4	
	0.1	07/19/00	1000		24000		120		31		37.1	
	0.1	08/15/00	DRY									
	0.1	09/12/00	DRY									
	0.1	10/17/00	DRY									
	0.1	11/14/00	0930		3700		270		<10		28.8	
RA-43	0.1	06/11/99	1300		>2400		2400		>2400			
	0.1	06/15/99	1300		92000		1600		970			
	0.1	07/13/99	1440		17000		290		160			
	0.1	08/18/99	1430		21000		100		200		3.1	67
	0.1	09/13/99	1345		6900		63		120			
RA-43	0.1	03/28/00	1330		>24000		1300		720		47.0	
	0.1	04/18/00	1500		9800		20		52		40.1	
	0.1	05/16/00	1430		5200		<10		<10		41.2	
	0.1	06/13/00	1415		20000		61		590		44.2	
	0.1	06/27/00	1420		>24000		550		220		26.8	
	0.1	07/19/00	1500		>24000		4400		1500		31.1	
	0.1	08/15/00	1400		9800		1200		1600		35.2	
	0.1	09/12/00	DRY									
	0.1	10/17/00	1350		4000		10		10		37.2	
	0.1	11/14/00	1345		3700		<10		<10		43.2	

Appendix Table 5. 2000 Rathbun Lake Profile Data.

STAT	DATE mm/dd/yy	TIME hhmm	DEPTH m	TEMP °C	DO mg/L	COND u ohms	pH	ORP mV
RA-3	04/18/00	0830	0.1	9.9	11.3	272	8.4	313
		0831	1	9.9	11.3	273	8.4	316
		0832	2	9.9	11.2	272	8.4	317
		0833	3	9.9	11.2	273	8.4	318
		0834	4	9.9	11.2	273	8.4	318
		0835	5	9.9	11.1	273	8.4	320
		0836	6	9.8	11.1	273	8.4	322
		0837	7	9.8	11.0	274	8.4	323
		0838	8	9.7	11.0	273	8.4	324
		0839	9	9.7	11.0	273	8.4	324
		0840	10	9.6	11.0	274	8.4	325
		0841	11	9.6	11.0	273	8.4	326
		0842	12	9.6	11.0	273	8.4	326
		0843	13	9.5	11.0	274	8.4	327
RA-3	05/16/00	0800	0.1	16.6	8.0	275	7.9	278
		0801	1	16.6	8.1	277	7.9	283
		0802	2	16.5	8.0	277	7.9	286
		0803	3	16.5	7.8	277	7.9	290
		0804	4	16.5	7.6	277	7.9	294
		0805	5	16.4	7.6	277	7.9	297
		0806	6	16.4	7.6	277	7.9	302
		0807	7	16.4	7.6	277	7.9	305
		0808	8	16.3	7.6	277	7.9	308
		0809	9	16.3	7.6	277	7.9	311
		0810	10	16.3	7.6	277	7.9	313
		0811	11	16.2	7.5	277	7.9	315
		0812	12	16.2	7.5	277	7.9	317
		0813	13	16.2	7.5	277	7.9	319
RA-3	06/13/00	0800	0.1	21.5	7.6	272	8.0	244
		0801	1	21.5	7.7	273	8.0	258
		0802	2	21.3	7.3	275	7.9	269
		0803	3	21.3	7.0	273	7.9	273
		0804	4	21.3	7.0	273	7.9	276
		0805	5	21.2	6.8	274	7.8	281
		0806	6	21.2	6.8	275	7.8	283
		0807	7	21.1	6.7	273	7.8	286
		0808	8	20.7	5.9	277	7.7	294
		0809	9	20.4	5.2	278	7.6	299
		0810	10	20.2	4.8	280	7.5	302
		0811	11	20.1	4.4	280	7.5	304
		0812	12	20.0	3.7	282	7.4	305
		0813	13	19.9	3.5	282	7.4	306
		0814	13.5	19.8	2.5	285	7.4	306

STAT	DATE	TIME	DEPTH	TEMP	DO	COND	pH	ORP
	mm/dd/yy	hhmm	m	°C	mg/L	u ohms		mV
RA-3	07/20/00	0700	0.1	25.0	6.3	261	8.1	260
		0701	1	25.0	6.2	262	8.1	278
		0702	2	25.0	6.2	262	8.1	285
		0703	3	25.0	6.2	262	8.1	291
		0704	4	25.0	6.0	262	8.0	297
		0705	5	24.9	4.6	264	7.8	308
		0706	6	24.9	3.6	264	7.6	316
		0707	7	24.9	3.3	264	7.5	317
		0708	8	24.7	3.1	265	7.5	321
		0709	9	24.4	2.4	268	7.4	324
		0710	10	22.5	1.1	281	7.2	291
		0711	11	22.2	0.1	284	7.2	253
		0712	12	22.1	0.1	285	7.2	219
		0713	13	22.0	0.1	285	7.2	194
		0714	14	21.9	0.1	287	7.2	155
RA-3	08/15/00	0730	0.1	25.0	5.4	265	7.8	388
		0731	1	25.0	5.5	265	7.8	392
		0732	2	25.0	5.3	265	7.8	391
		0733	3	25.0	5.3	265	7.8	391
		0734	4	25.0	5.3	265	7.8	393
		0735	5	25.0	5.6	265	7.8	395
		0736	6	24.9	5.6	265	7.8	397
		0737	7	24.9	5.2	265	7.8	400
		0738	8	24.9	5.4	265	7.8	400
		0739	9	24.7	4.8	267	7.7	404
		0740	10	24.6	3.9	268	7.6	407
		0741	11	24.3	1.4	271	7.3	414
		0742	12	24.2	0.8	273	7.3	416
		0743	13	24.0	0.1	276	7.3	415
		0744	14	23.7	0.1	281	7.3	220
RA-3	09/12/00	0800	0.1	23.9	6.2	264	7.5	307
		0801	1	23.9	6.2	264	7.5	312
		0802	2	23.8	6.1	264	7.5	313
		0803	3	23.8	6.1	264	7.5	314
		0804	4	23.8	6.1	265	7.5	315
		0805	5	23.8	6.0	264	7.5	316
		0806	6	23.8	6.0	265	7.5	317
		0807	7	23.6	6.0	265	7.5	317
		0808	8	23.6	5.9	265	7.5	318
		0809	9	23.5	5.9	265	7.5	319
		0810	10	23.3	5.8	265	7.5	320
		0811	11	23.2	5.9	265	7.5	320
		0812	12	23.0	5.8	265	7.5	321
		0813	13	22.9	5.8	265	7.5	321

STAT	DATE	TIME	DEPTH	TEMP	DO	COND	pH	ORP
	mm/dd/yy	hhmm	m	°C	mg/L	u ohms		mV
RA-3	10/17/00	0800	0.1	14.0	8.7	264	7.9	271
		0801	1	14.1	8.6	267	7.9	281
		0802	2	14.1	8.6	266	7.9	290
		0803	3	14.1	8.5	266	7.9	297
		0804	4	14.1	8.5	266	7.9	301
		0805	5	14.1	8.5	266	7.9	304
		0806	6	14.1	8.4	267	7.9	308
		0807	7	14.1	8.4	267	7.9	309
		0808	8	14.1	8.4	267	7.9	311
		0809	9	14.1	8.4	267	7.9	312
		0810	10	14.1	8.5	267	7.9	313
		0811	11	14.0	8.4	266	7.9	315
		0812	12	14.0	8.5	266	7.9	316
		0813	13	14.0	8.5	267	7.9	317
RA-7	04/18/00	1115	0.1	11.4	10.7	275	8.3	339
		1116	1	11.4	10.7	275	8.4	339
		1117	2	11.2	10.5	276	8.3	341
		1118	3	11.1	10.2	277	8.3	342
		1119	4	11.0	10.0	278	8.2	345
		1120	5	11.0	9.8	278	8.2	346
		1121	6	11.0	9.8	279	8.2	346
		1122	7	11.0	9.7	279	8.1	347
RA-7	05/16/00	1230	0.1	18.7	8.3	285	7.9	370
		1231	1	18.3	8.1	285	7.9	367
		1232	2	17.8	8.1	284	7.9	365
		1233	3	17.4	7.9	283	7.8	364
		1234	4	17.3	7.6	283	7.8	365
		1235	5	17.1	7.5	283	7.8	366
		1236	6	17.0	7.2	283	7.7	366
RA-7	06/13/00	1000	0.1	23.6	6.7	280	7.9	302
		1001	1	23.5	6.6	279	7.9	305
		1002	2	23.4	6.6	279	7.9	305
		1003	3	23.3	6.7	279	7.9	307
		1004	4	23.2	6.5	280	7.9	309
		1005	5	22.9	5.8	281	7.7	314
		1006	6	22.7	4.7	282	7.6	319
		1007	6.5	22.7	4.5	283	7.6	320
RA-7	07/21/00	0730	0.1	24.7	5.6	246	7.7	361
		0731	1	24.8	5.5	246	7.7	369
		0732	2	24.8	5.5	247	7.7	375
		0733	3	24.8	5.5	247	7.7	378
		0734	4	24.7	5.5	247	7.7	381
		0735	5	24.7	5.5	247	7.7	383

STAT	DATE mm/dd/yy	TIME hhmm	DEPTH m	TEMP °C	DO mg/L	COND u ohms	pH	ORP mV
RA-7		0736	6	24.6	5.6	246	7.7	386
		0737	7	24.5	5.7	247	7.7	388
RA-7	08/16/00	0800	0.1	27.1	7.2	235	8.4	363
		0801	1	27.1	6.9	236	8.4	367
		0802	2	27.0	6.4	237	8.2	374
		0803	3	26.3	3.1	242	7.5	391
		0804	4	26.2	2.6	244	7.4	394
		0805	5	26.1	2.4	245	7.4	396
		0806	6	26.1	2.0	246	7.4	395
		0807	7	26.1	1.7	247	7.4	390
RA-7	09/13/00	0800	0.1	23.5	6.3	257	7.6	342
		0801	1	23.6	6.2	258	7.6	345
		0802	2	23.6	6.1	258	7.6	345
		0803	3	23.6	6.2	259	7.6	346
		0804	4	23.6	6.1	258	7.6	346
		0805	5	23.6	6.0	259	7.6	346
		0806	6	23.5	6.1	260	7.6	346
		0807	7	23.5	6.0	261	7.6	345
RA-7	10/17/00	0945	0.1	13.9	9.6	261	8.0	310
		0946	1	13.9	9.3	261	7.9	315
		0947	2	13.8	9.2	260	7.9	318
		0948	3	13.7	9.1	260	7.9	322
		0949	4	13.7	9.0	259	7.9	324
		0950	5	13.7	9.0	259	7.9	326
		0951	6	13.7	9.0	259	7.9	327
RA-8	04/18/00	1200	0.1	13.0	10.2	349	8.3	332
		1201	1	12.4	10.0	355	8.4	333
		1202	2	12.0	8.8	347	8.1	340
		1203	3	11.9	8.5	351	8.1	341
		1204	4	11.9	8.2	351	8.0	342
RA-8	05/16/00	1345	0.1	20.6	10.1	349	8.5	360
		1346	1	18.7	8.6	345	8.2	360
		1347	2	18.0	8.1	330	8.0	364
		1348	3	17.9	7.6	326	7.9	366
		1349	4	17.8	6.7	331	7.7	368
RA-8	06/13/00	1100	0.1	25.1	5.2	332	7.6	311
		1101	1	25.1	5.0	332	7.6	315
		1102	2	25.0	5.0	332	7.6	315
		1103	3	25.0	5.0	333	7.6	319
		1104	4	23.6	2.5	309	7.4	324

STAT	DATE mm/dd/yy	TIME hhmm	DEPTH m	TEMP °C	DO mg/L	COND u ohms	pH	ORP mV
RA-8	07/21/00	0830	0.1	24.5	4.9	263	7.5	409
		0831	1	24.5	4.5	263	7.4	413
		0832	2	24.5	4.4	263	7.4	417
		0833	3	24.4	3.9	264	7.4	420
		0834	4	24.3	1.9	270	7.2	425
RA-8	08/16/00	0930	0.1	26.2	4.1	273	7.5	401
		0931	1	26.1	3.9	274	7.5	403
		0932	2	26.0	3.7	272	7.5	405
		0933	3	26.0	3.7	272	7.5	406
		0934	4	26.0	3.7	272	7.5	407
RA-8	09/13/00	1000	0.1	23.5	5.0	283	7.5	376
		1001	1	23.5	4.9	283	7.4	376
		1002	2	23.4	4.9	284	7.4	375
		1003	3	23.3	5.0	283	7.4	375
		1004	4	23.1	5.2	282	7.4	361
RA-8	10/17/00	1045	0.1	14.1	9.2	286	8.0	314
		1046	1	14.0	9.0	286	7.9	319
		1047	2	13.9	8.9	289	7.9	321
		1048	3	13.8	8.8	291	7.9	323
		1049	4	13.8	8.7	292	7.9	325
RA-25	04/18/00	0945	0.1	10.8	11.3	272	8.5	352
		0946	1	10.8	11.2	272	8.5	348
		0947	2	10.7	11.0	273	8.5	346
		0948	3	10.6	10.7	273	8.5	345
		0949	4	10.2	10.5	274	8.3	348
		0950	5	10.0	10.4	273	8.3	349
		0951	6	9.9	10.2	274	8.3	349
		0952	7	9.9	10.1	274	8.2	349
		0953	7.5	9.9	10.1	274	8.2	345
RA-25	05/16/00	1030	0.1	17.5	8.9	275	8.2	394
		1031	1	17.3	8.5	275	8.1	390
		1032	2	17.1	8.2	275	8.1	388
		1033	3	17.0	8.2	276	8.0	389
		1034	4	17.0	8.1	276	8.0	387
		1035	5	16.9	8.2	276	8.0	387
		1036	6	16.8	8.1	276	8.0	387
		1037	7	16.5	7.5	278	7.9	389
RA-25	06/13/00	0900	0.1	23.9	9.0	268	8.5	269
		0901	1	23.8	8.9	269	8.5	274
		0902	2	23.6	8.8	269	8.5	277
		0903	3	23.5	8.6	270	8.4	281

STAT	DATE	TIME	DEPTH	TEMP	DO	COND	pH	ORP
	mm/dd/yy	hhmm	m	°C	mg/L	u ohms		mV
RA-25		0904	4	23.4	8.5	270	8.4	284
		0905	5	23.3	8.0	271	8.3	288
		0906	6	23.0	5.8	274	7.9	301
		0907	7	22.0	4.2	277	7.5	313
		0908	7.4	21.8	3.9	278	7.5	315
RA-25	07/20/00	0930	0.1	24.9	5.9	262	7.8	325
		0931	1	24.9	5.7	262	7.9	330
		0932	2	24.9	5.6	262	7.9	336
		0933	3	24.9	4.5	264	7.7	342
		0934	4	24.8	4.7	263	7.8	341
		0935	5	24.7	2.9	266	7.5	348
		0936	6	24.6	1.9	268	7.4	349
		0937	7	24.5	1.6	268	7.4	347
		0938	8	24.4	0.9	271	7.3	340
RA-25	08/15/00	0900	0.1	26.6	7.4	253	8.5	336
		0901	1	26.6	7.3	254	8.4	341
		0902	2	26.6	6.9	255	8.4	344
		0903	3	26.5	7.0	256	8.4	345
		0904	4	26.4	6.0	258	8.2	350
		0905	5	26.2	6.2	259	8.2	351
		0906	6	26.1	4.9	260	7.9	358
		0907	7	25.8	4.1	263	7.7	362
		0908	8	25.6	3.4	265	7.6	365
RA-25	09/12/00	0930	0.1	25.1	6.8	262	7.9	298
		0931	1	25.1	7.0	262	8.0	298
		0932	2	25.1	6.9	262	7.9	299
		0933	3	25.1	6.7	262	7.9	302
		0934	4	25.1	6.9	262	8.0	301
		0935	5	25.1	6.5	263	7.9	304
		0936	6	25.1	6.5	263	7.9	305
		0937	7	25.0	6.7	262	7.9	305
RA-25	10/17/00	0900	0.1	14.4	9.7	264	8.2	303
		0901	1	14.4	9.7	266	8.2	305
		0902	2	14.4	9.6	266	8.2	308
		0903	3	14.4	9.6	266	8.2	310
		0904	4	14.4	9.3	267	8.2	313
		0905	5	14.4	8.4	268	8.0	319
		0906	6	14.3	8.5	268	8.0	320
		0907	7	14.3	7.8	269	7.8	324

STAT	DATE mm/dd/yy	TIME hhmm	DEPTH m	TEMP °C	DO mg/L	COND u ohms	pH	ORP mV
RA-28	04/17/00	1315	0.1	9.7	10.9	272	8.3	272
RA-28	05/16/00	0700	0.1	16.2	8.7	285	7.9	276
RA-28	06/13/00	0645	0.1	20.2	7.8	285	7.6	256
RA-28	07/19/00	1300	0.1	22.8	8.0	283	7.5	312
RA-28	08/14/00	1230	0.1	24.2	7.5	279	7.6	391
RA-28	09/11/00	1130	0.1	24.2	8.2	268	7.5	337
RA-28	10/17/00	1615	0.1	14.6	10.5	265	8.1	307

Appendix Table 6. Rathbun Lake Water Quality Data, 1997-2000.

STAT	DEPTH	DATE	TIME	ATZ	ALAC	METO	CYAN	NH3	NO3/NO2	TKN	TN	TP	TOP	TURB	TSS	CHL	SECC	PHOT
	m	mm/dd/yy	hhmm	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	mg/L	ug/L	m	m
RA-3	0.1	04/30/97	0800	2.50	0.06	0.80	<0.04	0.15	1.00	1.00	2.15	0.37		15.0	13.0	16.7	0.64	
	0.1	05/13/97	0800	2.00	0.09	0.71	1.49	<0.02	0.80	0.90	1.70	0.16		30.0	22.0	6.9	0.34	1.10
	0.1	05/27/97	1145	2.00	<0.05	3.99	1.86	0.10	0.85	1.10	2.05	0.14	0.03	26.0	12.0			
	0.1	06/08/97	1245	1.89	0.07	0.63	<0.04	0.30	0.81	1.20	2.31	0.09	0.07	25.0	21.0			
	0.1	06/23/97	1405	2.38	0.41	0.76	1.52	0.02	0.91	0.90	1.83	0.15	0.03	18.0	8.0			
	0.1	07/07/97	1406	2.15	0.07	0.65	1.38	0.02	0.73	0.50	1.25	0.05	0.05	12.0	13.0			
	0.1	07/21/97	1410	2.99	0.17	1.21	1.39	0.02	0.56	0.60	1.18	0.08	0.02	5.2	5.0			
	0.1	08/04/97	1351	2.52	0.09	0.93	1.26	0.07	0.27	0.90	1.24	0.18	0.02	6.0	7.0			
	0.1	09/02/97	1415	2.32	<0.05	0.64	1.25	<0.02	0.24	1.20	1.44	0.05	0.03	5.0	6.0			
	0.1	09/15/97	1245	3.20	0.09	0.70	1.43	0.11	0.22	0.70	1.03	0.07	0.04	5.0	5.0			
Mean				2.40	0.13	1.10	1.45	0.10	0.64	0.90	1.62	0.13	0.04	14.72	11.20	11.80	0.49	1.10
RA-3	0.1	04/14/98	1115	1.02	<0.05	0.27	0.46	0.03	0.50	0.90	1.43	0.06	0.05	25.0	17.0		0.40	
	0.1	05/04/98	0915	0.74	<0.05	0.22	0.46	0.04	0.61	0.40	1.05	0.07	0.01	17.0	7.0		0.67	
	0.1	05/18/98	1515	1.05	<0.05	0.20	0.50	0.09	0.62	0.60	1.31	0.07	0.03	12.0	3.0		1.07	
	0.1	06/09/98	1810	1.63	0.13	0.66	0.44	0.14	0.73	0.60	1.47	0.19	0.04	18.0	10.0		0.58	
	0.1	06/22/98	1510	1.71	<0.05	0.44	0.45	0.05	0.70	0.80	1.55	0.10	0.03	14.0	4.0		0.79	
	0.1	07/06/98	1310	1.44	0.10	0.85	0.28	0.46	0.81	0.50	1.77	0.19	0.01	10.0	5.0		1.04	
	0.1	07/20/98	1500	1.05	0.12	1.48	0.18	0.05	0.49	0.50	1.04	0.33	0.03	5.7	5.0		1.16	
	0.1	08/03/98	0845	0.81	0.07	1.12	0.11	<0.02	0.57	0.30	0.87	0.06	0.03	7.3	5.0		3.50	
	0.1	08/03/98	1400											12.0	12.0			
	0.1	08/17/98	0915	1.10	0.11	1.10	0.15	0.04	0.45	0.60	1.09	0.11	0.02	8.5	6.0		1.07	
	0.1	08/31/98	1200	0.94	0.12	1.23	0.12	0.05	0.26	0.90	1.21	0.04	0.03	6.7	7.0		1.07	
	0.1	09/13/98	0930	1.08	0.09	1.07	0.12	0.06	0.26	0.60	0.92	0.09	0.03	7.0	5.0		1.13	
Mean				1.14	0.11	0.79	0.30	0.10	0.55	0.61	1.25	0.12	0.03	11.93	7.17		1.13	
RA-3	0.1	04/14/99	0815	0.66	0.05	0.34	0.09	U	0.46	0.39	0.85	0.06	0.03	18.0	15.0		0.46	1.49
	0.1	05/11/99	0745	0.52	<0.05	0.30	0.08	0.19	0.81	0.50	1.50	0.04	0.02	20.0	13.0	4.2	0.55	1.31
	0.1	06/15/99	0745	1.31	0.08	1.02	0.11	U	1.23	0.62	1.85	0.06	0.03	24.0	9.3	6.2	0.49	1.28
	0.1	07/13/99	0730	0.79	0.09	1.70	0.06	U	1.01	0.68	1.69	0.07	U	17.0	8.1	2.4	0.76	1.68
	0.1	08/18/99	0830	0.85	0.09	2.02	0.07	U	0.96	0.39	1.35	0.05	0.03	12.0	9.0	6.0	0.88	2.04
	0.1	09/14/99	0800	0.91	0.06	2.12	0.09	U	0.68	0.42	1.10	0.01	0.01	11.0	14.0	4.0	0.82	1.90
	0.1	10/13/99	0900	0.97	0.11	1.37	0.22	0.07	U	0.32	0.39	0.04	0.01	17.0	17.0	5.6	0.61	1.37
Mean				0.86	0.08	1.27	0.10	0.13	0.86	0.47	1.25	0.05	0.02	17.00	12.20	4.73	0.65	1.58
RA-3	0.1	04/18/00	0830	0.47	0.11	1.20	0.10	U	0.14	0.53	0.67	0.12	U	11.0	9.4	4.9	0.88	2.07
	0.1	05/16/00	0800	0.50	<0.05	0.63	<0.04	0.04	U	0.45	0.49	0.06	0.01	18.0	17.0	0.8	0.55	
	0.1	06/13/00	0800	0.92	<0.05	0.60	0.09	0.20	0.08	0.50	0.78	0.06	U	14.0	19.0	2.0	0.64	1.86
	0.1	07/20/00	0700	0.96	0.06	0.80	0.11	U	U	0.41	0.41	0.12	U	10.0	9.2	6.9	0.91	
	0.1	08/15/00	0730	1.06	<0.05	0.60	0.08	U	U	0.27	0.27	0.02	0.01	5.5	5.2	2.7	1.52	3.20
	0.1	09/12/00	0800	0.84	<0.05	0.59	0.09	U	0.03	0.40	0.43	0.04	0.01	12.0	10.0	3.2	0.82	1.86
	0.1	10/17/00	0800	1.08				U	0.30	0.20	0.50	0.05	0.03	24.0	17.0	3.3	0.46	1.22
Mean				0.83	0.09	0.74	0.09	0.12	0.14	0.39	0.51	0.07	0.02	13.50	12.40	3.40	0.83	2.04
RA-3	14	04/30/97	0814	2.43	0.07	0.69	1.95	0.09	0.80	0.60	1.49	0.11		27.0	20.0			
	15	05/13/97	0815	1.97	0.06	0.75	1.44	<0.02	0.79	0.90	1.69	0.17		32.0	27.0			
	15	05/27/97	1200	1.78	0.05	0.70	2.02	0.13	0.86	1.00	1.99	0.13	0.03	28.0	16.0			
	14.5	06/08/97	1300	2.11	0.09	0.79	0.90	0.24	0.96	1.10	2.30	0.11	0.08	47.0	32.0			
	14.5	06/23/97	1420	2.40	0.53	0.61	1.55	0.03	0.96	0.90	1.89	0.11	0.06	72.0	55.0			
	13	07/07/97	1419	2.03	0.08	0.68	1.48	0.15	0.75	0.70	1.60	0.07	0.06	56.0	38.0			

STAT	DEPTH	DATE	TIME	ATZ	ALAC	METO	CYAN	NH3	NO3/NO2	TKN	TN	TP	TOP	TURB	TSS	CHL	SECC	PHOT
	m	mm/dd/yy	hhmm	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	mg/L	m	m
RA-3	13	07/21/97	1423	2.38	0.10	0.97	1.25	0.09	0.67	0.60	1.36	0.16	0.03	39.0	30.0			
	13	08/04/97	1404	2.35	0.12	0.75	1.15	0.53	0.16	1.10	1.79	0.21	0.03	27.0	28.0			
	13	09/02/97	1428	2.21	<0.05	0.68	1.24	0.10	0.42	1.10	1.62	0.07	0.03	19.0	21.0			
	13	09/15/97	1258	2.53	0.08	0.56	1.34	0.10	0.24	1.50	1.84	0.18	0.15	13.0	14.0			
Mean				2.22	0.13	0.72	1.43	0.16	0.66	0.95	1.76	0.13	0.06	36.00	28.10			
RA-3	17.5	04/14/98	1133	1.28	0.05	0.29	0.53	0.06	0.49	1.10	1.65	0.05	0.05	30.0	25.0			
	17	05/04/98	0932	0.79	<0.05	0.21	0.41	0.07	0.59	0.40	1.06	0.04	0.02	20.0	7.0			
	17	05/18/98	1532	0.88	<0.05	0.21	0.47	0.13	0.59	0.70	1.42	0.05	0.03	15.0	6.0			
	17	06/09/98	1827	1.29	0.07	0.44	0.46	0.10	0.74	0.60	1.44	0.09	0.06	39.0	27.0			
	18	06/22/98	1528	1.71	0.05	0.42	0.47	0.50	0.70	0.80	2.00	0.19	0.05	36.0	17.0			
	17	07/06/98	1327	1.67	0.08	0.57	0.42	0.52	0.88	0.60	2.00	0.07	0.01	35.0	14.0			
	16.5	07/20/98	1517	0.73	0.09	0.80	0.12	0.07	0.77	0.40	1.24	0.22	0.05	29.0	15.0			
	16	08/03/98	0901	0.81	0.12	1.07	0.11	0.07	0.61	0.30	0.98	0.03	0.01	25.0	18.0			
	16	08/17/98	0931	1.05	0.06	<0.05	0.12	0.12	0.41	0.20	0.73	0.11	0.02	12.0	10.0			
	15.5	08/31/98	1216	0.95	0.06	1.30	0.14	0.29	0.11	1.00	1.40	0.03	0.03	21.0	18.0			
	15	09/13/98	0945	1.03	<0.05	1.09	0.13	0.11	0.25	0.60	0.96	0.09	0.02	15.0	15.0			
Mean				1.11	0.07	0.64	0.31	0.19	0.56	0.61	1.35	0.09	0.03	25.18	15.64			
RA-3	7	05/11/99	0752	0.60	<0.05	0.29	0.08	0.24	0.78	0.39	1.41	0.06	0.04	24.0	20.0			
	10	07/13/99	0740	0.81	0.11	1.73	0.06	U	1.04	0.70	1.74	0.08	U	25.0	24.0			
	6	09/14/99	0806	0.91	0.08	2.03	0.07	U	0.69	0.43	1.12	0.02	0.01	13.0	14.0			
Mean				0.77	0.10	1.35	0.07	0.24	0.84	0.51	1.42	0.05	0.03	20.67	19.33			
RA-3	7	05/16/00	0807	0.69	0.13	0.91	0.14	0.05	U	0.58	0.63	0.06	0.01	25.0	23.0			
	7	07/20/00	0707	0.85	<0.05	0.58	0.12	U	U	0.11	0.11	0.13	0.01	11.0	12.0			
	7	09/12/00	0807	0.90	<0.05	0.50	0.10	U	0.05	0.40	0.45	0.05	0.01	13.0	11.0			
Mean				0.81	0.13	0.66	0.12	0.05	0.05	0.36	0.40	0.08	0.01	16.33	15.33			
RA-3	13	04/14/99	0828	0.66	<0.05	0.24	0.08	0.14	0.48	0.41	1.03	0.07	0.03	29.0	28.0			
	14	05/11/99	0759	0.47	<0.05	0.25	0.07	0.19	0.76	0.71	1.66	0.05	0.03	23.0	16.0			
	16	06/15/99	0801	0.56	<0.05	0.44	0.06	U	1.64	0.49	2.13	0.08	0.05	48.0	40.0			
	15	07/13/99	0745	0.72	0.09	1.00	0.07	0.03	1.04	0.52	1.59	0.10	U	61.0	52.0			
	14	08/18/99	0844	0.88	0.09	1.95	0.08	U	0.93	0.38	1.31	0.05	0.04	23.0	17.0			
	12	09/14/99	0812	0.92	0.08	2.09	0.07	U	0.70	0.44	1.14	0.05	0.01	15.0	15.0			
	13.5	10/13/99	0914	0.90	0.09	1.43	0.21	U	U	0.36	0.36	0.04	0.03	24.0	20.0			
Mean				0.73	0.09	1.06	0.09	0.12	0.93	0.47	1.32	0.06	0.03	31.86	26.86			
RA-3	13	04/18/00	0843	0.95	0.10	1.22	<0.04	U	0.13	0.52	0.65	0.10	U	20.0	16.0			
	13	05/16/00	0813	0.69	0.06	0.70	<0.04	0.03	U	0.40	0.43	0.04	0.01	24.0	22.0			
	13.5	06/13/00	0814	0.88	0.10	0.68	<0.04	0.36	0.06	0.63	1.05	0.10	0.02	48.0	46.0			
	14	07/20/00	0714	0.89	0.08	0.84	0.11	U	0.02	0.10	0.12	0.21	0.04	45.0	41.0			
	14	08/15/00	0744	0.92	<0.05	0.60	0.08	0.24	U	0.39	0.63	0.05	0.03	12.0	15.0			
	13	09/12/00	0813	0.84	<0.05	0.49	0.09	U	0.06	0.40	0.46	0.05	0.01	18.0	20.0			
	13	10/17/00	0813	0.96				U	0.30	0.10	0.40	0.05	0.03	24.0	16.0			
Mean				0.88	0.09	0.76	0.09	0.21	0.11	0.36	0.53	0.09	0.02	27.29	25.14			
RA-7	0.1	04/30/97	0915	1.13	<0.05	0.28	0.63				0.00			69.0	49.0	15.5	0.24	
	0.1	05/13/97	1000	0.70	<0.05	0.30	<0.04	0.04	1.62	1.30	2.96	0.19		65.0	31.0	16.9	0.18	0.50
	0.1	05/27/97	1415	1.84	<0.05	0.93	1.05	0.08	1.31	1.20	2.59	0.09	0.05	69.0	33.0			
	0.1	06/08/97	1440	2.01	0.09	1.05	1.06	0.23	1.33	1.30	2.86	0.10	0.08	61.0	31.0			
	0.1	06/23/97	1615	2.44	0.51	1.34	<0.04	<0.02	1.36	0.80	2.16	0.09	0.05	36.0	15.0			

STAT	DEPTH	DATE	TIME	ATZ	ALAC	METO	CYAN	NH3	NO3/NO2	TKN	TN	TP	TOP	TURB	TSS	CHL	SECC	PHOT	
	m	mm/dd/yyv	hhmm	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	mg/L	ug/L	m	m
RA-7	0.1	07/07/97	1706	3.19	0.17	1.50	1.39	1.02	0.86	1.10	2.98	0.08	0.05	27.0	28.0				
	0.1	07/21/97	1530	3.52	0.16	1.83	1.48	0.03	0.49	0.80	1.32	0.15	0.03	15.0	14.0				
	0.1	08/04/97	1508	6.70	0.21	2.18	1.53	0.08	0.17	1.30	1.55	0.42	0.03	9.0	13.0				
	0.1	09/02/97	1535	2.49	<0.05	0.88	1.26	<0.02	0.17	1.20	1.37	0.06	0.03	11.0	12.0				
	0.1	09/15/97	1400	2.79	0.12	0.67	1.40	0.10	0.08	1.30	1.48	0.08	0.04	13.0	16.0				
Mean				2.68	0.21	1.10	1.23	0.23	0.82	1.14	1.93	0.14	0.05	37.50	24.20	16.20	0.21	0.50	
RA-7	0.1	04/14/98	1220	0.12	<0.05	0.13	0.05	0.18	0.84	1.30	2.32	0.14	0.08	114.0	25.0		0.15		
	0.1	05/04/98	1010	0.37	<0.05	0.21	0.15	0.09	0.72	0.70	1.51	0.13	0.05	72.0	14.0		0.20		
	0.1	05/18/98	1600	1.00	0.05	0.35	0.29	0.12	0.63	0.60	1.35	0.11	0.06	28.0	4.0		0.58		
	0.1	06/09/98	1910	6.70	0.16	2.43	0.63	0.01	0.98	0.40	1.39	0.13	0.09	49.0	12.0		0.30		
	0.1	06/22/98	1600	12.60	0.21	2.65	1.03	0.06	1.32	1.20	2.58	0.18	0.09	50.0	13.0		0.27		
	0.1	07/06/98	1350	0.74	0.12	1.70	0.09	0.06	0.97	1.00	2.03	0.10	0.02	17.0	9.0		0.70		
	0.1	07/20/98	1550	0.96	0.14	1.71	0.13	0.07	0.69	0.90	1.66	0.19	0.03	13.0	8.0		0.73		
	0.1	08/03/98	0945	0.91	0.13	1.88	0.12	0.03	0.57	0.50	1.10	0.31	0.02	16.0	16.0		1.70		
	0.1	08/17/98	1015	1.11	0.08	1.60	0.10	0.02	0.39	0.60	1.01	0.16	0.02	13.7	15.0		0.79		
	0.1	08/31/98	1245	1.02	0.08	1.42	0.13	0.02	0.18	0.80	1.00	0.03	0.03	17.0	18.0		0.55		
	0.1	09/13/98	1015	1.07	0.05	1.39	0.10	0.06	0.12	0.60	0.78	0.10	0.03	19.0	14.0		0.52		
Mean				2.42	0.11	1.41	0.26	0.07	0.67	0.78	1.52	0.14	0.05	37.15	13.45		0.59		
RA-7	0.1	04/14/99	1000	0.48	<0.05	0.25	0.09	U	0.88	0.52	1.40	0.11	0.05	45.0	53.0		0.27		
	0.1	05/12/99	0815	0.62	<0.05	0.39	<0.04	0.03	2.28	0.90	3.21	0.15	0.08	69.0	22.0	3.2	0.21		
	0.1	06/15/99	0945	0.70	0.18	3.05	<0.04	U	1.82	0.44	2.26	0.10	0.07	59.0	13.0	2.6	0.30	0.61	
	0.1	07/13/99	1200	0.67	0.17	3.07	0.07	U	1.07	1.06	2.13	0.11	U	26.0	18.0	2.1	0.43	1.19	
	0.1	08/18/99	1130	0.86	0.10	2.11	0.07	U	0.73	0.51	1.24	0.04	0.02	15.0	14.0	12.4	0.61	1.31	
	0.1	09/14/99	1330	0.94	0.07	1.95	0.09	U	0.41	0.53	0.94	0.14	0.02	29.0	27.0	5.8	0.37	1.04	
	0.1	10/14/99	1000	1.00	0.10	1.43	0.18	U	0.36	0.54	0.90	0.04	0.01	19.0	17.0	12.1	0.49	1.22	
Mean				0.75	0.12	1.75	0.10	0.03	1.08	0.64	1.73	0.10	0.04	37.43	23.43	6.37	0.38	1.07	
RA-7	0.1	04/18/00	1115	0.72	0.08	1.13	0.13	U	U	0.66	0.66	0.11	U	20.0	19.0	7.3	0.52	1.22	
	0.1	05/16/00	1230	0.33	0.09	0.67	<0.04	0.04	U	0.71	0.75	0.09	0.02	27.0	34.0	11.7	0.30		
	0.1	06/13/00	1000	0.81	<0.05	0.46	0.07	0.21	0.03	0.61	0.85	0.19	0.01	32.0	29.0	11.7	0.37	0.94	
	0.1	07/21/00	0730	1.39	0.09	0.98	0.13	U	0.13	0.62	0.75	0.38	U	23.0	25.0	9.9	0.46		
	0.1	08/16/00	0800	1.83	<0.05	0.58	0.10	U	U	1.00	1.00	0.16	0.05	17.0	15.0	31.9	0.61	1.22	
	0.1	09/13/00	0800	0.97	<0.05	0.50	0.11	U	U	0.60	0.60	0.10	0.04	47.0	42.0	7.0	0.27	0.58	
	0.1	10/17/00	0945	1.08				U	0.40	0.30	0.70	0.08	0.04	35.0	24.0	9.4	0.30	0.91	
Mean				1.02	0.09	0.72	0.11	0.13	0.19	0.64	0.76	0.16	0.03	28.71	26.86	12.70	0.40	0.97	
RA-7	8.5	04/30/97	0924	0.89	0.05	0.26	0.51	0.28	0.91	1.10	2.29	0.16		96.0	72.0				
	8	05/13/97	1008	1.67	0.11	0.74	1.44	0.15	1.24	1.00	2.39	0.16		52.0	26.0				
	7	05/27/97	1422	1.88	0.11	0.75	1.39	0.09	1.13	1.20	2.42	0.16	0.05	70.0	46.0				
	7	06/08/97	1447	2.63	0.16	1.11	0.57	0.13	1.57	1.50	3.20	0.18	0.14	122.0	58.0				
	6.5	06/23/97	1622	2.36	0.42	0.89	1.14	0.05	0.95	1.10	2.10	0.15	0.06	65.0	44.0				
	6.5	07/07/97	1713	3.46	0.26	1.43	1.43	0.02	0.89	0.70	1.61	0.20	0.06	49.0	39.0				
	6.5	07/21/97	1537	3.39	0.17	1.60	1.30	0.11	0.53	1.10	1.74	0.17	0.04	42.0	40.0				
	6.5	08/04/97	1515	2.74	0.10	1.03	1.25	0.25	0.29	1.30	1.84	0.20	0.03	32.0	36.0				
	6.1	08/20/97	520	5.20	<0.05	<0.05	1.20	0.26	0.34	1.50	2.10	0.26							
	6.5	09/02/97	1542	3.08	<0.05	1.12	1.23	0.04	0.51	1.00	1.55	0.12	0.05	38.0	34.0				
	6.5	09/15/97	1407	3.19	0.13	0.92	1.31	0.11	0.35	1.00	1.46	0.14	0.08	48.0	41.0				
Mean				2.77	0.17	0.99	1.16	0.14	0.79	1.14	2.06	0.17	0.06	61.40	43.60				

STAT	DEPTH	DATE	TIME	ATZ	ALAC	METO	CYAN	NH3	NO3/NO2	TKN	TN	TP	TOP	TURB	TSS	CHL	SECC	PHOT	
	m	mm/dd/yyyy	hhmm	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	mg/L	ug/L	m	m
RA-7	10.5	04/14/98	1231	0.80	<0.05	0.25	0.34	0.07	0.61	1.00	1.68	0.06	0.05	60.0	33.0				
	10.5	05/04/98	1021	0.85	<0.05	0.26	0.42	0.09	0.62	0.40	1.11	0.06	0.02	35.0	9.0				
	10.5	05/18/98	1611	0.94	0.07	0.27	0.31	0.45	0.64	0.70	1.79	0.54	0.07	45.0	7.0				
	10.5	06/09/98	1921	2.93	0.14	1.30	0.45	0.01	0.85	0.50	1.36	0.08	0.07	39.0	19.0				
	11	06/22/98	1611	9.40	0.14	2.38	1.05	0.05	1.35	1.00	2.40	0.16	0.11	51.0	9.0				
	10.5	07/06/98	1401	0.50	0.23	2.48	0.06	<0.02	1.32	0.50	1.82	0.22	0.15	39.0	12.0				
	10	07/20/98	1600	0.72	0.16	1.79	0.10	0.08	0.86	0.60	1.54	0.17	0.06	46.0	26.0				
	9.5	08/03/98	0955	0.99	0.16	1.78	0.10	0.04	0.65	0.50	1.19	0.07	0.03	31.0	29.0				
	9	08/17/98	1024	1.21	0.09	1.98	0.13	0.06	0.51	0.70	1.27	0.18	0.03	30.0	25.0				
	8	08/31/98	1253	1.03	0.09	1.71	0.14	0.13	0.23	0.60	0.96	0.12	0.04	31.0	27.0				
	8	09/13/98	1023	1.21	0.09	1.40	0.12	0.13	0.28	0.90	1.31	0.20	0.08	62.0	60.0				
Mean					1.87	0.13	1.42	0.29	0.11	0.72	0.67	1.49	0.17	0.06	42.64	23.27			
RA-7	4	05/12/99	0819	0.21	<0.05	0.12	<0.04	0.04	2.29	0.98	3.31	0.16	0.08	74.0	20.0				
	4	07/13/99	1204	0.69	0.20	3.53	0.04	0.19	1.22	0.69	2.10	0.13	0.01	36.0	12.0				
	3	09/14/99	1333	1.09	0.07	2.20	0.09	U	0.36	0.58	0.94	0.06	0.02	31.0	30.0				
Mean					0.66	0.14	1.95	0.07	0.12	1.29	0.75	2.12	0.12	0.04	47.00	20.67			
RA-7	3	05/16/00	1233	0.43	0.07	0.66	<0.04	0.04	U	0.66	0.70	0.09	0.03	39.0	33.0				
	4	07/21/00	0734	1.40	0.09	0.98	0.19	U	0.13	0.40	0.53	0.14	U	24.0	26.0				
	4	09/13/00	0804	1.01	<0.05	0.45	0.11	U	U	0.70	0.70	0.10	0.04	47.0	43.0				
Mean					0.95	0.08	0.70	0.15	0.04	0.13	0.59	0.64	0.11	0.04	36.67	34.00			
RA-7	7	04/14/99	1007	0.27	<0.05	0.15	0.05	0.03	1.28	0.70	2.01	0.13	0.07	55.0	47.0				
	8	05/12/99	0823	0.24	<0.05	0.14	0.05	0.09	2.26	0.95	3.30	0.15	0.09	75.0	26.0				
	10	06/15/99	0955	0.79	0.10	2.02	<0.04	0.03	1.33	0.72	2.08	0.14	0.04	80.0	64.0				
	9	07/13/99	1209	0.62	0.22	3.41	0.06	0.04	1.44	0.48	1.96	0.10	0.01	49.0	23.0				
	7	08/18/99	1137	1.41	0.15	2.67	0.14	0.04	0.59	0.66	1.29	0.13	0.06	71.0	77.0				
	7	09/14/99	1337	1.18	0.08	4.09	0.09	0.03	0.38	0.60	1.01	0.15	0.05	33.0	33.0				
	7	10/14/99	1007	1.01	0.10	1.38	0.21	0.02	0.32	0.49	0.83	0.05	0.01	20.0	19.0				
Mean					0.79	0.13	1.98	0.10	0.04	1.09	0.66	1.78	0.12	0.05	54.71	41.29			
RA-7	7	04/18/00	1122	0.65	0.06	1.02	0.12	U	U	0.71	0.71	0.12	0.01	39.0	45.0				
	6	05/16/00	1236	0.75	<0.05	0.60	<0.04	0.03	U	0.46	0.49	0.09	0.06	39.0	36.0				
	6.5	06/13/00	1007	0.86	0.07	0.41	<0.04	0.35	U	0.80	1.15	0.15	0.03	56.0	56.0				
	7	07/21/00	0737	1.40	0.07	0.98	0.15	U	0.12	0.43	0.55	0.14	0.01	24.0	27.0				
	7	08/16/00	0807	1.29	<0.05	0.56	0.10	0.12	U	1.00	1.12	0.20	0.08	34.0	34.0				
	7	09/13/00	0807	1.13	<0.05	0.49	0.10	U	U	0.70	0.70	0.10	0.05	56.0	57.0				
	6	10/17/00	0951	1.04					U	0.50	0.20	0.70	0.08	0.04	39.0	27.0			
Mean					1.02	0.07	0.68	0.12	0.17	0.31	0.61	0.77	0.13	0.04	41.00	40.29			
RA-8	0.1	04/30/97	1000	0.26	<0.05	<0.05	0.12	0.21	1.33	1.10	2.64	0.13		68.0	52.0	11.3	0.21		
	0.1	05/13/97	1105	1.55	0.07	1.44	0.52	0.30	1.25	1.50	3.05	0.16		78.0	44.0	12.3	0.15	0.40	
	0.1	05/27/97	1330	80.00	<0.05	2.20	<0.04	0.22	0.90	1.60	2.72	0.19	0.08	86.0	79.0				
	0.1	06/08/97	1400	2.67	0.12	1.54	0.76	0.03	0.54	0.14	0.71	0.10	0.08	48.0	49.0				
	0.1	06/23/97	1525	12.40	0.75	2.76	2.59	0.04	0.84	1.40	2.28	0.15	0.04	34.0	40.0				
	0.1	07/07/97	1541	17.10	<0.05	<0.05	4.00	0.29	1.45	1.60	3.34	0.08	0.07	73.0	76.0				
	0.1	07/21/97	1506	7.95	0.25	1.74	1.68	0.06	0.63	1.00	1.69	0.13	0.03	23.0	23.0				
	0.1	08/04/97	1436	5.44	0.40	1.59	2.83	0.12	0.09	1.80	2.01	0.29	0.04	26.0	38.0				
	0.1	09/02/97	1610	3.80	<0.05	<0.05	0.37	<0.02	0.68	1.30	1.98	0.13	0.05	45.0	32.0				
	0.1	09/15/97	1440	2.82	0.09	0.65	1.17	0.06	0.26	1.00	1.32	0.11	0.06	20.0	17.0				
Mean				13.40	0.28	1.70	1.56	0.15	0.80	1.24	2.17	0.15	0.06	50.10	45.00	11.80	0.18	0.40	

STAT	DEPTH	DATE	TIME	ATZ	ALAC	METO	CYAN	NH3	NO3/NO2	TKN	TN	TP	TOP	TURB	TSS	CHL	SECC	PHOT	
	m	mm/dd/yyyy	hhmm	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	mg/L	ug/L	m	m
RA-8	0.1	04/14/98	1310	0.17	<0.05	0.13	0.05	0.18	0.49	1.50	2.17	0.13	0.09	181.0	90.0		0.15		
	0.1	05/04/98	1045	0.24	<0.05	0.14	0.10	0.14	0.53	0.60	1.27	0.06	0.05	52.0	16.0		0.27		
	0.1	05/18/98	1640	4.80	0.14	3.17	0.43	0.20	0.86	1.20	2.26	0.34	0.10	62.0	17.0		0.24		
	0.1	06/09/98	1945	12.80	0.31	4.03	0.65	0.04	1.06	1.10	2.20	0.11	0.10	60.0	19.0		0.24		
	0.1	06/22/98	1640	16.70	0.22	3.36	1.30	0.07	1.65	1.60	3.32	0.13	0.10	52.0	20.0		0.27		
	0.1	07/06/98	1425	0.80	0.21	2.50	0.07	0.09	1.25	0.60	1.94	0.09	0.06	30.0	10.0		0.43		
	0.1	07/20/98	1640	1.54	0.13	1.79	0.15	0.06	0.26	0.70	1.02	0.16	0.03	15.0	9.0		0.73		
	0.1	08/03/98	1015	1.60	0.13	1.58	0.14	0.11	0.16	0.60	0.87	0.05	0.03	19.0	18.0		1.40		
	0.1	08/17/98	1050	2.14	0.10	1.30	0.19	0.05	0.06	0.90	1.01	0.20	0.02	20.0	18.0		0.46		
	0.1	08/31/98	1315	1.43	0.08	1.21	0.16	0.08	0.12	0.80	1.00	0.08	0.03	29.0	31.0		0.36		
	0.1	09/13/98	1100	2.02	0.09	0.90	0.16	0.09	0.07	1.00	1.16	0.17	0.04	26.0	22.0		0.40		
Mean				4.02	0.16	1.83	0.31	0.10	0.59	0.96	1.66	0.14	0.06	49.64	24.55		0.45		
RA-8	0.1	04/14/99	1030	0.11	<0.05	<0.05	<0.04	0.05	0.84	0.89	1.78	0.15	0.08	45.0	39.0		0.24		
	0.1	05/12/99	0900	0.23	<0.05	0.14	<0.04	0.32	1.62	1.08	3.02	0.15	0.08	64.0	21.0	4.8	0.21		
	0.1	06/15/99	1045	1.91	0.25	6.90	<0.04	U	1.07	0.15	1.22	0.23	0.06	132.0	50.0	2.0	0.15	0.30	
	0.1	07/13/99	1330	1.01	0.18	3.02	0.06	U	0.89	0.94	1.83	0.15	U	59.0	41.0	8.1	0.27	0.61	
	0.1	08/18/99	1230	1.23	0.11	2.12	0.10	U	0.59	0.65	1.24	0.10	0.04	40.0	31.0	21.2	0.30	0.73	
	0.1	09/14/99	1430	1.11	0.09	1.65	0.08	U	0.18	0.84	1.02	0.09	0.02	38.0	41.0	15.5	0.30	0.67	
	0.1	10/14/99	0900	1.05	0.09	1.04	0.20	U	U	0.71	0.71	0.08	0.01	18.0	19.0	19.1	0.46	1.16	
Mean				0.95	0.14	2.48	0.11	0.19	0.87	0.75	1.55	0.14	0.05	56.57	34.57	11.78	0.28	0.69	
RA-8	0.1	04/18/00	1200	0.58	<0.05	0.49	0.07	U	U	1.00	1.00	0.15	0.01	24.0	24.0	6.3	0.46	0.94	
	0.1	05/16/00	1345	0.30	0.08	0.32	<0.04	U	U	2.00	2.00	0.21	0.03	38.0	44.0	16.3	0.30		
	0.1	06/13/00	1100	0.81	<0.05	0.25	0.10	0.42	0.03	1.00	1.45	0.22	0.06	72.0	84.0	9.7	0.18	0.49	
	0.1	07/21/00	0830	1.87	0.07	1.07	0.17	0.09	0.28	0.70	1.07	0.16	0.02	31.0	34.0	13.2	0.36		
	0.1	08/16/00	0930	1.48	0.05	0.46	0.11	0.18	U	1.00	1.18	0.27	0.11	44.0	48.0	10.9	0.24	0.61	
	0.1	09/13/00	1000	1.16	0.06	0.38	0.13	0.03	U	1.00	1.03	0.20	0.07	68.0	80.0	17.0	0.15	0.46	
	0.1	10/17/00	1045	1.03				U	0.50	0.40	0.90	0.09	0.04	37.0	29.0	15.2	0.21	0.67	
Mean				1.03	0.07	0.50	0.12	0.18	0.27	1.01	1.23	0.19	0.05	44.86	49.00	12.66	0.27	0.63	
RA-8	5.5	04/30/97	1006	0.59	0.10	0.13	0.25	0.40	1.20	1.30	2.90	0.16		129.0	106.0				
	4.5	05/13/97	1110	2.52	0.10	1.92	0.83	0.27	1.17	1.60	3.04	0.18		115.0	80.0				
	5	05/27/97	1335	2.51	0.15	1.49	1.21	0.21	0.93	1.70	2.84	0.15	0.09	97.0	80.0				
	4	06/08/97	1404	3.11	0.18	1.59	0.77	0.06	0.46	1.60	2.12	0.14	0.08	79.0	87.0				
	4	06/23/97	1529	3.63	0.39	1.28	1.62	0.04	0.84	1.10	1.98	0.21	0.07	88.0	86.0				
	4	07/07/97	1545	14.70	0.19	3.34	2.97	0.37	1.52	1.30	3.19	0.09	0.09	115.0	115.0				
	4	07/21/97	1510	4.82	0.27	2.14	2.03	0.12	0.64	1.00	1.76	0.15	0.04	57.0	61.0				
	4	08/04/97	1440	4.39	0.13	1.43	1.88	0.09	0.14	1.60	1.83	0.26	0.07	75.0	80.0				
	6.1	08/20/97	5.20	<0.05	<0.05	0.90	0.03	0.28	0.60	0.91	0.15				178.0				
	4	09/02/97	1614	2.22	<0.05	0.74	0.78	0.19	0.64	1.60	2.43	0.40	0.10	100.0	86.0				
	4	09/15/97	1444	2.40	0.10	0.60	0.94	0.12	0.41	1.20	1.73	0.19	0.10	74.0	77.0				
Mean				4.19	0.18	1.47	1.29	0.17	0.75	1.33	2.25	0.19	0.08	92.90	94.18				
RA-8	8	04/14/98	1318	0.09	<0.05	0.14	0.06	0.20	0.50	1.60	2.30	0.16	0.10	250.0	158.0				
	8	05/04/98	1053	0.39	<0.05	0.16	0.19	0.17	0.57	0.30	1.04	0.12	0.05	55.0	17.0				
	8	05/18/98	1648	1.32	0.09	0.51	0.46	0.15	0.60	0.60	1.35	0.12	0.06	29.0	10.0				
	8	06/09/98	1953	11.90	0.21	3.76	0.61	0.10	1.23	0.80	2.13	0.14	0.10	77.0	40.0				
	8.5	06/22/98	1649	9.10	0.12	2.49	0.75	0.12	1.11	1.30	2.53	0.19	0.10	60.0	28.0				
	8.5	07/06/98	1434	2.79	0.29	2.43	0.31	0.29	0.88	0.80	1.97	0.28	0.07	56.0	35.0				
	7.5	07/20/98	1648	1.63	0.18	2.56	0.18	0.48	0.26	1.10	1.84	0.23	0.16	109.0	92.0				
	7	08/03/98	1022	1.61	0.15	1.46	0.13	0.22	0.15	0.80	1.17	0.13	0.05	54.0	57.0				

STAT	DEPTH	DATE	TIME	ATZ	ALAC	METO	CYAN	NH3	NO3/NO2	TKN	TN	TP	TOP	TURB	TSS	CHL	SECC	PHOT	
	m	mm/dd/yyv	hhmm	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	mg/L	ug/L	m	m
RA-8	6.5	08/17/98	1057	1.34	0.08	1.46	0.14	0.14	0.31	0.80	1.25	0.22	0.03	40.0	39.0				
	6	08/31/98	1321	1.84	0.08	1.30	0.17	0.15	0.22	1.30	1.67	0.14	0.07	77.0	100.0				
	5	09/13/98	1105	1.62	0.06	0.95	0.15	0.26	0.16	1.20	1.62	0.20	0.08	60.0	67.0				
Mean				3.06	0.14	1.57	0.29	0.21	0.54	0.96	1.72	0.18	0.08	78.82	58.45				
RA-8	3	05/12/99	0903	0.28	<0.05	0.12	0.05	0.22	1.61	1.07	2.90	0.15	0.08	65.0	26.0				
	3	07/13/99	1333	0.99	0.19	2.95	0.07	U	1.11	0.88	1.99	0.15	U	60.0	37.0				
	2	09/14/99	1432	1.12	0.09	1.51	0.08	U	0.17	0.78	0.95	0.09	0.02	38.0	43.0				
Mean				0.80	0.14	1.53	0.07	0.22	0.96	0.91	1.95	0.13	0.05	54.33	35.33				
RA-8	2	05/16/00	1347	0.56	<0.05	0.34	0.29	U	U	2.00	2.00	0.26	0.02	47.0	62.0				
	2	07/21/00	0832	1.97	0.07	0.93	0.17	0.08	0.27	0.75	1.10	0.17	0.02	33.0	29.0				
	2	09/13/00	1002	1.11	<0.05	0.39	0.11	U	U	1.10	1.10	0.20	0.06	71.0	80.0				
Mean				1.21	0.07	0.55	0.19	0.08	0.27	1.28	1.40	0.21	0.03	50.33	57.00				
RA-8	5	04/14/99	1035	0.06	<0.05	0.06	<0.04	0.08	0.73	1.10	1.91	0.18	0.11	74.0	68.0				
	6	05/12/99	0906	1.80	<0.05	0.52	1.21	0.19	1.15	1.48	2.82	0.27	0.11	192.0	169.0				
	7	06/15/99	1052	1.85	0.24	4.20	<0.04	0.03	1.56	1.20	2.79	0.25	0.06	159.0	106.0				
	6	07/13/99	1336	0.80	0.16	2.83	0.06	U	1.22	0.39	1.61	0.10	0.02	70.0	20.0				
	5	08/18/99	1235	1.37	0.11	2.20	0.11	0.02	0.57	0.80	1.39	0.17	0.07	83.0	86.0				
	4.5	09/14/99	1435	1.15	0.10	1.66	0.09	U	0.18	0.89	1.07	0.13	0.04	83.0	94.0				
	4	10/14/99	0904	1.05	0.09	1.09	0.26	0.02	U	0.79	0.81	0.09	0.01	30.0	35.0				
Mean				1.15	0.14	1.79	0.35	0.07	0.90	0.95	1.77	0.17	0.06	98.71	82.57				
RA-8	4	04/18/00	1204	0.55	<0.05	0.73	0.09	U	U	1.00	1.00	0.17	0.02	38.0	45.0				
	4	05/16/00	1349	0.48	<0.05	0.33	<0.04	U	U	1.00	1.00	0.19	0.03	51.0	63.0				
	4	06/13/00	1104	0.88	0.13	0.28	0.09	0.46	U	1.00	1.46	0.24	0.07	105.0	138.0				
	4	07/21/00	0834	2.09	0.08	1.10	0.19	0.18	0.23	0.71	1.12	0.17	U	37.0	36.0				
	4	08/16/00	0934	1.41	<0.05	0.49	0.10	0.18	U	1.00	1.18	0.48	0.10	47.0	53.0				
	4	09/13/00	1004	1.05	<0.05	0.42	0.12	0.07	U	1.10	1.17	0.20	0.07	83.0	98.0				
Mean				1.06	0.11	0.56	0.12	0.19	0.37	0.89	1.12	0.22	0.06	57.57	67.86				
RA-25	0.1	04/14/99	0915	0.71	<0.05	0.38	0.08	U	0.46	0.87	1.33	0.05	0.02	16.0	15.0	0.61	1.52		
	0.1	05/11/99	0845	0.56	<0.05	0.27	0.08	0.16	0.81	0.48	1.45	0.05	0.03	26.0	16.0	9.6	0.52	1.37	
	0.1	06/15/99	0845	1.80	0.06	1.06	0.16	U	1.19	0.64	1.83	0.06	0.02	21.0	12.0	9.7	0.58	1.25	
	0.1	07/13/99	0930	0.81	0.09	1.82	0.08	0.25	1.14	0.65	2.04	0.06	U	11.0	7.3	8.0	0.91	2.13	
	0.1	08/18/99	0930	0.72	0.08	1.89	0.08	U	0.82	0.39	1.21	0.03	0.03	13.0	7.0	8.2	0.91	2.22	
	0.1	09/14/99	1030	0.85	0.06	1.96	0.07	U	0.66	0.51	1.17	0.03	0.01	19.0	15.0	7.6	0.52	1.52	
	0.1	10/13/99	1100	0.96	0.09	1.39	0.20	U	U	0.48	0.48	0.03	0.01	11.0	12.0	15.0	0.91	2.35	
Mean				0.92	0.08	1.25	0.11	0.21	0.85	0.57	1.36	0.04	0.02	16.71	12.04	9.68	0.71	1.77	
RA-25	0.1	04/18/00	0945	0.98	0.09	1.23	0.12	U	0.08	0.62	0.70	0.08	U	11.0	9.9	3.8	0.98	2.16	
	0.1	05/16/00	1030	0.60	<0.05	0.69	<0.04	U	U	0.40	0.40	0.03	U	12.0	9.7	2.0	0.91		
	0.1	06/13/00	0900	0.88	<0.05	0.41	0.09	0.37	U	0.90	1.27	0.07	U	12.0	10.0	4.6	0.76	1.92	
	0.1	07/20/00	0930	0.87	0.05	0.84	0.12	U	U	0.22	0.22	0.10	0.01	9.0	6.9	8.9	0.91		
	0.1	08/15/00	0900	0.93	<0.05	0.59	0.08	U	U	0.45	0.45	0.03	0.01	13.0	8.3	6.4	0.91	2.07	
	0.1	09/12/00	0930	0.98	<0.05	0.57	0.10	U	U	0.50	0.50	0.05	U	12.0	10.0	4.5	0.82	1.83	
Mean				1.06				U	0.20	0.30	0.50	0.06	U	16.0	13.0	10.3	0.43	1.77	
				0.90	0.07	0.72	0.10	0.37	0.14	0.48	0.58	0.06	0.01	12.14	9.69	5.79	0.82	1.95	

STAT	DEPTH	DATE	TIME	ATZ	ALAC	METO	CYAN	NH3	NO3/NO2	TKN	TN	TP	TOP	TURB	TSS	CHL	SECC	PHOT
	m	mm/dd/vvv	hhmm	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	mg/L	m	m
RA-25	5	05/11/99	0850	0.58	<0.05	0.28	0.08	0.18	0.78	0.42	1.38	0.04	0.04	23.0	15.0			
	5	07/13/99	0935	0.92	0.11	1.56	0.10	0.35	1.00	0.50	1.85	0.06	U	16.0	12.0			
	4	09/14/99	1034	0.85	0.07	1.91	0.08	0.03	0.68	0.50	1.21	0.06	0.01	19.0	16.0			
Mean				0.78	0.09	1.25	0.09	0.19	0.82	0.47	1.48	0.05	0.03	19.33	14.33			
RA-25	4	05/16/00	1034	0.71	0.07	0.80	0.07	U	U	0.39	0.39	0.03	U	12.0	10.0			
	4	07/20/00	0934	0.85	0.05	0.81	0.10	U	0.01	0.24	0.25	0.10	U	9.0	7.5			
	4	09/12/00	0934	0.89	<0.05	0.55	0.10	U	U	0.50	0.50	0.05	U	16.0	13.0			
Mean				0.82	0.06	0.72	0.09		0.01	0.38	0.38	0.06		12.33	10.17			
RA-25	8	04/14/99	0923	0.66	<0.05	0.36	0.07	U	0.43	0.89	1.32	0.06	0.07	25.0	27.0			
	10	05/11/99	0855	0.58	<0.05	0.28	0.05	0.24	0.82	0.42	1.48	0.05	0.04	32.0	30.0			
	11	06/15/99	0856	1.84	0.06	0.85	0.13	U	1.18	0.87	2.05	0.08	0.03	44.0	12.0			
	10	07/13/99	0940	0.88	0.09	1.65	0.09	0.48	1.12	0.58	2.18	0.80	U	51.0	48.0			
	8	08/18/99	0938	0.86	0.08	1.87	0.07	0.02	0.90	0.42	1.34	0.04	0.04	23.0	21.0			
	7.5	09/14/99	1038	0.76	0.07	1.97	0.07	0.05	0.74	0.49	1.28	0.04	0.01	20.0	16.0			
	7.5	10/13/99	1108	0.91	0.09	1.39	0.23	U	U	0.45	0.45	0.03	0.01	12.0	9.0			
Mean				0.93	0.08	1.20	0.10	0.20	0.87	0.59	1.44	0.16	0.03	29.57	23.29			
RA-25	7.5	04/18/00	0953	0.93	<0.05	1.16	<0.04	U	0.13	0.69	0.82	0.09	U	27.0	28.0			
	7	05/16/00	1037	0.67	0.08	0.83	<0.04	U	U	0.50	0.50	0.03	U	14.0	12.0			
	7.4	06/13/00	0908	0.82	<0.05	0.30	0.05	0.30	U	0.53	0.83	0.09	U	19.0	17.0			
	8	07/20/00	0938	0.83	0.07	0.81	0.12	U	0.05	0.03	0.08	0.07	U	14.0	14.0			
	8	08/15/00	0908	0.98	<0.05	0.53	0.08	0.03	U	0.43	0.46	0.03	0.01	9.5	8.2			
	7	09/12/00	0937	0.87	<0.05	0.49	0.10	U	U	0.50	0.50	0.05	U	15.0	13.0			
	7	10/17/00	0907	0.96				U	0.20	0.10	0.30	0.07	U	26.0	24.0			
Mean				0.87	0.08	0.69	0.09	0.17	0.13	0.40	0.50	0.06	0.01	17.79	16.60			
RA-28	0.1	04/30/97	1215	<0.05	<0.05	<0.05	<0.04	0.40	0.60	0.60	1.60	0.19		23.0	19.0			
	0.1	05/12/97	1445	2.11	0.07	0.76	1.61	0.02	0.77	0.90	1.69	0.13		31.0	24.0			
	0.1	05/27/97	0930	2.20	0.11	3.93	1.81	0.10	0.85	0.90	1.85	0.07	0.04	28.0	12.0			
	0.1	06/08/97	1320	2.11	0.05	0.62	1.43	0.04	0.92	1.10	2.06	0.13	0.08	39.0	22.0			
	0.1	06/23/97	1020	2.40	0.52	0.70	1.49	0.02	0.95	0.90	1.87	0.14	0.06	36.0	19.0			
	0.1	07/07/97	1045	2.23	0.11	0.64	1.40	0.09	0.75	0.50	1.34	0.16	0.06	37.0	24.0			
	0.1	07/21/97	1010	2.37	0.14	1.08	1.27	0.24	0.63	0.90	1.77	0.20	0.05	59.0	56.0			
	0.1	08/04/97	1000	2.28	0.10	0.80	1.40	0.22	0.25	0.40	0.87	0.31	0.03	21.0	24.0			
	0.1	09/02/97	1000	1.88	<0.05	0.60	1.20	0.14	0.35	1.20	1.69	0.15	0.04	20.0	20.0			
	0.1	09/15/97	0920	2.47	0.11	0.63	1.35	0.09	0.51	0.80	1.40	0.08	0.05	14.0	15.0			
Mean				2.23	0.15	1.08	1.44	0.14	0.66	0.82	1.61	0.16	0.05	30.80	23.50			
RA-28	0.1	04/14/98	1445	0.99	<0.05	0.29	0.51							28.0	20.0			
	0.1	05/04/98	1150	0.93	<0.05	0.25	0.46	0.05	0.60	0.60	1.25	0.12	0.03	19.0	5.0			
	0.1	05/18/98	1840	1.16	0.06	0.25	0.49	0.11	0.62	0.40	1.13	0.03	0.03	16.0	5.0			
	0.1	06/09/98	1715	1.41	0.06	0.48	0.45	<0.02	0.62	0.50	1.12	0.15	0.14	28.0	17.0			
	0.1	06/22/98	1740	1.72	0.10	0.44	0.48	0.06	0.73	0.80	1.59	0.07	0.04	23.0	9.0			
	0.1	07/06/98	1100	1.30	0.11	0.78	0.25	0.04	0.86	0.40	1.30	0.04	0.03	20.0	9.0			
	0.1	07/20/98	1745	0.90	0.12	1.00	0.16	0.06	0.78	0.30	1.14	0.23	0.04	18.0	6.0			
	0.1	08/03/98	1120	0.93	0.09	1.22	0.13	0.07	0.58	0.50	1.15	0.13	0.03	21.0	17.0			
	0.1	08/17/98	1210	1.11	0.06	1.17	0.15	0.06	0.45	0.50	1.01	0.14	0.01	12.0	8.0			
	0.1	08/31/98	1035	0.98	0.09	1.15	0.14	0.02	0.03	0.40	0.45	0.06	0.02	12.0	11.0			
	0.1	09/13/98	1200	1.22	<0.05	1.11	0.13	0.09	0.19	0.20	0.48	0.04	0.02	11.0	10.0			
Mean				1.15	0.09	0.74	0.30	0.06	0.55	0.46	1.06	0.10	0.04	18.91	10.64			

STAT	DEPTH	DATE	TIME	ATZ	ALAC	METO	CYAN	NH3	NO3/NO2	TKN	TN	TP	TOP	TURB	TSS	CHL	SECC	PHOT
	m	mm/dd/yyyy	hhmm	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	mg/L	ug/L	m	m
RA-28	0.1	04/14/99	1130	0.53	<0.05	0.38	0.08	U	0.45	0.80	1.25	0.07	0.04	29.0	28.0			
	0.1	05/11/99	1300	0.51	<0.05	0.28	0.06	0.31	0.82	0.18	1.31	0.05	0.03	29.0	18.0	3.4		
	0.1	06/15/99	1200	1.50	0.05	0.68	0.07	U	1.84	0.51	2.35	0.07	0.05	37.0	34.0			
	0.1	07/13/99	0720	0.77	0.10	1.82	0.10	U	1.25	0.34	1.59	0.07	U	29.0	9.9	0.3		
	0.1	08/19/99	0715	0.87	0.08	2.09	0.08	0.04	U	0.21	0.25	0.02	U	16.0	12.0			
	0.1	09/13/99	1245	0.81	0.06	1.80	0.07	U	0.72	0.51	1.23	0.04	U	12.0	9.0			
	0.1	10/14/99	1200	0.95	0.09	1.32	0.20	U	0.55	0.45	1.00	0.04	U	14.0	14.0			
Mean				0.85	0.08	1.20	0.09	0.18	0.94	0.43	1.28	0.05	0.04	23.71	17.84	1.85		
RA-28	0.1	04/17/00	1315	0.81	0.19	1.56	<0.04	U	0.17	0.57	0.74	0.13	U	15.0	17.0			
	0.1	05/16/00	0700	0.63	0.09	0.86	<0.04	0.06	U	0.60	0.66	0.06	0.02	33.0	37.0	0.4		
	0.1	06/13/00	0645	0.52	<0.05	0.35	0.06	0.32	0.11	0.60	1.03	0.10	0.03	50.0	51.0			
	0.1	07/19/00	1300	0.77	0.07	0.83	0.10	0.13	U	0.74	0.87	0.19	U	33.0	31.0	1.5		
	0.1	08/14/00	1230	0.93	<0.05	0.58	0.08	0.30	U	0.95	1.25	0.18	0.05	11.0	11.0			
	0.1	09/11/00	1130	0.94	<0.05	0.52	0.09	0.05	0.14	0.40	0.59	0.04	0.02	18.0	17.0	0.5		
	0.1	10/17/00	1615	0.98				0.02	0.30	0.40	0.72	0.08	U	26.0	18.0			
Mean				0.80	0.12	0.78	0.08	0.15	0.18	0.61	0.84	0.11	0.03	26.57	26.00	0.80		

Appendix Table 7. Rathbun Lake Water Quality Data, 1999-2000.

STAT DET REP	DEPTH	DATE	TIME	SO4 10 20	TOC 0.2 1	DOC 0.2 1	TDS 5 10	VS 5 10	T FE 40 120	D FE	T MN 1 4	D MN	COD 3	TS 5	LAB pH	TALK
	m	mmddyy	hhmm	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L
RA-3	0.1	04/14/99	0815													
	0.1	05/11/99	0745	23	6.8	6.7	158	29	838	U	49	U				88
	0.1	06/15/99	0745			5.6				U		U				
	0.1	07/13/99	0730	25	5.6	6.37	192	87	758	U	24.5	U			7.6	82
	0.1	08/18/99	0830	24	6.2	6.1	167	71	360	U	103	29			6.6	90
	0.1	09/14/99	0800	17	6.1	6.4	196	81	470	U	47	10			7.8	90
	0.1	10/13/99	0900	24	5.5	5.5	147	24	675	U	108	24	19		7.6	95
RA-3	0.1	04/18/00	0830	21	6	6	169	79	300	U	225	102			8.0	95
	0.1	05/16/00	0800	25	6	6	149	69	755	U	185	119			7.4	100
	0.1	06/13/00	0800			5			303	U	226	128				
	0.1	07/20/00	0700	21	6.7	6.1	229	132	318	U	109	U			7.5	100
	0.1	08/15/00	0730			6.5			117	U	73	U				
	0.1	09/12/00	0800	19	5.3	6	160	50	371	U	124	U			7.3	96
	0.1	10/17/00	0800			6.3			876	U	108	13				
RA-3	7	05/11/99	0752	23	6.9	6.8	158	114	968	U	58	2				88
	10	07/13/99	0740	28	6.3	6.46	186	105	1050	U	33.2	7.1			7.6	84
	6	09/14/99	0806	18	7.6	6.1	203	87	614	U	56	U			7.8	90
RA-3	7	05/16/00	0807	25	5	6	143	57	931	U	208	135			7.5	96
	7	07/20/00	0707	22	5.9	5.7	220	100	324	U	138	U			7.0	100
	7	09/12/00	0807	20	5.2	6	162	48	388	U	133	U			7.5	96
RA-3	13	04/14/99	0828													
	14	05/11/99	0759	23	7.1	6.5	162	35	1140	U	70	2				90
	16	06/15/99	0801			5.6				U		4				
	15	07/13/99	0745	23	5.72	6.1	196	84	2350	U	736	713			7.2	90
	14	08/18/99	0844	23	6.1	6.1	159	59	758	U	482	362			6.6	92
	12	09/14/99	0812	20	5.9	5.9	153	86	608	U	59	U			7.9	90
	13.5	10/13/99	0914	22	5.7	5.5	147	25	872	U	114	25	11		7.5	92
RA-3	13	04/18/00	0843	20	6	6	167	75	490	U	233	106			7.9	96
	13	05/16/00	0813	23	6	6	208	85	1019	U	207	131			7.7	98
	13.5	06/13/00	0814		5	5			2166	U	1020	783				
	14	07/20/00	0714	22	5.7	5.8	232	89	627	U	752	12			7.2	100
	14	08/15/00	0744			6.2			379	U	1147	979				
	13	09/12/00	0813	19	5.3	6	176	71	557	U	180	15			7.1	96
	13	10/17/00	0813			5.4			825	U	124	21				
RA-7	0.1	04/14/99	1000													
	0.1	05/12/99	0815	19	9.2	7.6	176	44	3331	U	72	3			70	
	0.1	06/15/99	0945			6.7				U		2				
	0.1	07/13/99	1200	23	6.75	6.87	181	98	1100	U	32	U			8.1	82

STAT DET REP	DEPTH	DATE	TIME	SO4	TOC	DOC	TDS	VS	T FE	D FE	T MN	D MN	COD	TS	LAB pH	T ALK
	m	mmddyy	hhmm	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L		mg/L
RA-7	0.1	08/18/99	1130	20	6	5.9	52	23	410	U	64	3			7.9	85
	0.1	09/14/99	1330	21	6.3	6.3	188	78	1080	U	164	19			7.8	94
	0.1	10/14/99	1000	22	6.3	5.9	141	82	537	U	69	U	20		7.7	94
RA-7	0.1	04/18/00	1115	18	6	6	180	94	474	U	238	39			7.9	100
	0.1	05/16/00	1230	24	6	7	164	66	1969	U	1681	118			7.7	110
	0.1	06/13/00	1000		6	5			716	U	250	64				
	0.1	07/21/00	0730	17	6.8	6.9	194	97	735	U	264	25			6.7	95
	0.1	08/16/00	0800		7.7	6.1			376	U	168	5				
	0.1	09/13/00	0800	19	6	6.6	171	57	1616	U	328	82			7.3	95
	0.1	10/17/00	0945		6.3	5.6			1530	U	167	50				
RA-7	4	05/12/99	0819	16	11	7.8	160	63	3363	U	75	3			7.0	
	4	07/13/99	1204	20	7.9	6.99	188	83	1890	U	58	U			7.7	80
	3	09/14/99	1333	22	6.6	6.4	176	69	1040	U	167	18			7.8	92
RA-7	3	05/16/00	1233	22	6	6	155	58	1509	U	295	120			7.6	104
	4	07/21/00	0734	19	6.8	6.6	180	78	623	U	264	23			6.9	90
	4	09/13/00	0804	19	6	6.5	164	48	1835	U	343	95			7.4	95
RA-7	7	04/14/99	1007													
	8	05/12/99	0823	20	8.7	7.7	167	54	3389	U	82	5			7.3	
	10	06/15/99	0955			5.6				U		33				
	9	07/13/99	1209	17	6.54	6.95	181	88	2180	U	94.2	14			7.4	84
	7	08/18/99	1137	19	6.6	6.5	154	60	3280	U	400	192				94
	7	09/14/99	1337	21	7.4	6.6	133	43	998	U	172	20			7.8	92
	7	10/14/99	1007	22	6.1	5.8	147	49	500	U	77	5	16		7.9	94
RA-7	7	04/18/00	1122	17	6	6	188	104	1033	U	319	64			7.8	102
	6	05/16/00	1236	23	6	6	175	53	1515	U	293	117			7.5	104
	6.5	06/13/00	1007		6	5			1945	U	523	252				
	7	07/21/00	0737	19	6.6	6.5	184	95	679	U	270	17			7.0	95
	7	08/16/00	0807		6.9	6			1442	U	501	239				
	7	09/13/00	0807	56	5.5	6.9	182	70	2508	U	442	155			7.3	96
	6	10/17/00	0951		5.7	5.7			1557	U	188	64				
RA-8	0.1	04/14/99	1030													
	0.1	05/12/99	0900	26	8.2	8.5	183	56	2929	U	76	9			86	
	0.1	06/15/99	1045			7.4				U		22				
	0.1	07/13/99	1330	24	6.98	7.21	189	70	2600	U	125	11			7.6	90
	0.1	08/18/99	1230	23	5.4	5.4	167	62	1110	U	323	109			7.4	108
	0.1	09/14/99	1430	21	7.5	7.4	204	74	1350	U	396	167			7.8	114
	0.1	10/14/99	0900	23	7.1	7	164	77	648	U	216	5.1	23		8.2	116

STAT DET REP	DEPTH	DATE	TIME	SO4 10 mg/L	TOC 0.2 mg/L	DOC 0.2 mg/L	TDS 5 mg/L	VS 5 mg/L	T FE 40 ug/L	D FE 4 ug/L	T MN 1 ug/L	D MN 1 ug/L	COD 3 mg/L	TS 5 mg/L	LAB pH	T ALK
	m	mmddyy	hhmm													
RA-8	0.1	04/18/00	1200	28	8	7	229	108	659	U	909	485		7.8	122	
	0.1	05/16/00	1345	33	8	8	189	104	1664	U	308	886		8.0	124	
	0.1	06/13/00	1100		7	7			1406	U	1299	890				
	0.1	07/21/00	0830	20	7.6	7.5	224	117	1104	U	497	243		7.1	100	
	0.1	08/16/00	0930		8	7			1688	U	744	528				
	0.1	09/13/00	1000	23	6.7	7.8	175	38	3373	U	792	495		7.3	110	
	0.1	10/17/00	1045		6.1	5.5			1267	U	318	142				
RA-8	3	05/12/99	0903	23	8.1	8.2	179	48	2704	U	76	10		84		
	3	07/13/99	1333	20	6.85	7.38	189	79	2660	U	119	12		7.5	86	
	2	09/14/99	1432	28	7.2	7	204	84	1300	U	386	161		8.0	112	
RA-8	2	05/16/00	1347	33	8	7	191	96	2159	U	1663	826		8.1	124	
	2	07/21/00	0832	21	8.2	7.7	200	95	999	U	495	242		7.1	98	
	2	09/13/00	1002	21	6.7	8	179	45	3516	U	786	486		7.2	110	
RA-8	5	04/14/99	1035													
	6	05/12/99	0906	23	10.5	9.6	180	46	8131	44	169	12		74		
	7	06/15/99	1052			7.4				U		95				
	6	07/13/99	1336	21	6.64	6.83	193	107	3190	U	121	11		7.2	86	
	5	08/18/99	1235	22	6.8	6.8	178	64	2930	U	626	388		7.1	112	
	4.5	09/14/99	1435	26	7.2	35	159	48	2750	U	457	209		7.7	110	
	4	10/14/99	0904	25	7.2	7.1	164	79	902	U	233	8	20	7.9	114	
RA-8	4	04/18/00	1204	28	7	7	236	116	1299	U	857	570		7.6	125	
	4	05/16/00	1349	32	8	8	212	66	2388	U	1572	812		7.8	122	
	4	06/13/00	1104		7	6			4088	U	1342	954				
	4	07/21/00	0834	21	8.3	7.7	187	74	1704	U	679	323		7.0	100	
	4	08/16/00	0934			8.1	6.9			1923	U	722	489			
	4	09/13/00	1004	21	6.8	7.7	195	80	3755	U	798	497		7.1	110	
	4	10/17/00	1049			6.3	5.1			1606	U	349	157			
RA-25	0.1	04/14/99	915													
	0.1	05/11/99	0845	26	6.7	6.5	160	33	470	U	37	1		88		
	0.1	06/15/99	0845			5.8				U						
	0.1	07/13/99	0930	22	6.16	6.72	175	142	370	U	13	U		8.3	82	
	0.1	08/18/99	0930	22	6.9	6.5	170	70	260	U	38	U		6.9	92	
	0.1	09/14/99	1030	18	9.5	6.2	193	8	690	U	83	6		7.6	90	
	0.1	10/13/99	1100	21	6.3	5.8	150	34	340	U	38	U	16	8.3	95	
RA-25	0.1	04/18/00	0945	22	6	6	168	72	292	U	174	24		7.8	99	
	0.1	05/16/00	1030	25	6	6	159	73	404	U	114	52		7.7	100	
	0.1	06/13/00	0900			6	5			330	U	199	21			
	0.1	07/20/00	0930	13	6.1	5.8	218	105	223	U	98	U		7.0	100	

STAT DET REP	DEPTH m	DATE mmddyy	TIME hhmm	SO4	TOC	DOC	TDS	VS	T FE	D FE	T MN	D MN	COD	TS	LAB pH	TALK
				10 mg/L	0.2 mg/L	0.2 mg/L	5 mg/L	5 mg/L	40 ug/L	1 ug/L	1 ug/L	3 ug/L	5 mg/L			
				20 mg/L	1 mg/L	1 mg/L	10 mg/L	10 mg/L	120 ug/L	4 ug/L	76 ug/L	U	7.8 mg/L	100 mg/L		
RA-25	0.1	08/15/00	0900		8.1	6.3			177	U	59	7				
	0.1	09/12/00	0930	20	5.4	6	163	44	409	U	76	U		7.8	100	
	0.1	10/17/00	0900		5.9	5.7			528	U	53	U				
RA-25	5	05/11/99	0850	29	6.6	6.5	158	146	851	U	47	1			88	
	5	07/13/99	0935	24	6.32	6.51	189	115	611	U	34.2	U		7.8	84	
	4	09/14/99	1034	17	6.3	6.3	174	73	717	U	83	U		7.5	90	
RA-25	4	05/16/00	1034	24	6	5	152	55	384	U	104	51		7.7	100	
	4	07/20/00	0934	18	6.2	5.6	231	116	247	U	95	U		7.3	100	
	4	09/12/00	0904	21	5.6	6	163	80	564	U	109	U		7.6	100	
RA-25	8	04/14/99	0923													
	10	05/11/99	0855	26	6.8	6.6	161	30	1390	U	77	6			88	
	11	06/15/99	0856			6.1				U		31				
	10	07/13/99	0940	25	6.26	6.45	189	92	2420	U	333	225		7.2	88	
	8	08/18/99	0938	21	5.9	5.6	165	87	619	U	184	76		6.8	92	
	7.5	09/14/99	1038	18	6.7	5.8	156	58	780	U	84	U		7.6	90	
	7.5	10/13/99	1108	22	6.8	5.7	143	93	320	51	40	U	19	8.2	93	
RA-25	7.5	04/18/00	0953	21	6	6	166	72	923	U	290	146		7.9	102	
	7	05/16/00	1037	21	6	6	179	58	525	U	116	51		8.0	99	
	7.4	06/13/00	0908			5			498	U	202	57				
	8	07/20/00	0938	23	5.9	5.5		87	429	U	297	164		7.3	100	
	8	08/15/00	0908			6.9	5.4		262	U	109	U				
	7	09/12/00	0937	18	5.4	6	134	71	558	U	106	U		7.6	100	
	7	10/17/00	0907			6	5.8		1043	U	115	24				
RA-28	0.1	04/14/99	1130													
	0.1	05/11/99	1300	27	6.7	6.8	157	43	969	U	68	6			92	
	0.1	06/15/99	1200			5.5				U		3				
	0.1	07/13/99	0720	32	5.91	6.24	191	111	1100	U	156	102		7.5	82	
	0.1	08/19/99	0715	21	7.9	5.6	138	67	460	U	147	53		7.0	90	
RA-28	0.1	09/13/99	1245	19	6.4	6	178	83	470	U	107	5		7.8	88	
	0.1	10/14/99	1200	23	5.8	5.8	147	211	380	U	57	9	14		7.6	94
RA-28	0.1	04/17/00	1315	20	6		161	52		U		125		7.6	90	
	0.1	05/16/00	0700	22	6	5	153	58	1417	U	274	165		7.1	94	
	0.1	06/13/00	0645			5			2528	U	1091	660				
	0.1	07/19/00	1300	20	6.9	5.4		99	1184	U	1656	1519		7.1	105	
	0.1	08/14/00	1230			6.3	5.7		400	U	1712	1591				
	0.1	09/11/00	1130	20	5.1	5	160	54	635	99	232	66		7.2	98	
	0.1	10/17/00	1615			5.9			1094	U	132	20				

Appendix Table 8. Rathbun Lake Elutriate Data, 1999-2000.

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	ATZ ug/L	ALAC ug/L	METO ug/L	CYAN ug/L	NH3 mg/L	NO3/NO2 mg/L	TKN mg/L	TN mg/L	TP mg/L	TOP mg/L
RA-3-E	15	07/13/1999	0745	0.40	U	0.20	0.05	6.23	0.51	8.11	14.85	0.24	U
	12	09/14/1999	0812	0.60	U	0.70	U	3.13	0.42	4.18	7.73	0.08	0.04
RA-3-E	13	05/16/2000	0813	0.30	U	0.20	U	4.00	U	7.00	11.00	0.06	U
	14	07/20/2000	0714	0.60	U	0.30	U	3.50	0.03	3.30	6.83	1.29	U
	13	09/12/2000	0813	0.40	U	0.10	U	4.00	U	5.00	9.00	0.03	U
RA-7-E	9	07/13/1999	1209	0.30	U	1.60	U	3.79	0.89	4.4	9.08	0.05	U
	7	09/14/1999	1337	0.70	U	0.90	U	2.78	0.26	3.63	6.67	0.11	0.01
RA-7-E	6	05/16/2000	1236	0.50	U	U	U	2.00	U	3.00	5.00	0.04	0.01
	7	07/21/2000	0737	1.10	U	0.30	U	2.66	0.16	2.40	5.22	0.91	U
	7	09/13/2000	0807	0.60	U	0.10	U	2.00	0.10	2.00	4.10	0.05	U
RA-8-E	6	07/13/1999	1336	0.50	U	1.00	U	5.39	0.71	5.38	11.48	0.03	U
	4.5	09/14/1999	1435	0.90	U	0.80	U	6.83	0.1	6.73	13.66	0.1	0.01
RA-8-E	4	05/16/2000	1349	0.30	U	U	U	6.00	U	10.00	16.00	0.06	U
	4	07/21/2000	0834	1.60	U	0.40	U	4.77	0.22	4.50	9.49	0.98	0.04
	4	09/13/2000	1004	0.60	U	0.10	U	4.00	0.10	5.00	9.10	0.03	U
RA-25-E	10	07/13/1999	0940	0.40	U	0.40	U	3.99	0.41	4.58	8.98	0.02	U
	7.5	09/14/1999	1038	0.60	U	0.80	U	3.86	0.36	4.67	8.89	0.15	0.03
RA-25-E	7	05/16/2000	1037	0.30	U	0.50	U	3.00	U	5.00	8.00	0.11	U
	8	07/20/2000	0938	0.60	U	0.20	U	3.22	U	2.60	5.82	0.35	U
	7	09/12/2000	0937	0.50	U	0.20	U	2.00	U	3.00	5.00	0.03	U

Appendix Table 9. Rathbun Lake Elutriate Data, 1999-2000.

STAT	DEPTH m	DATE mmddyy	TIME hhmm	SO4 mg/L	DOC mg/L	TDS mg/L	VS mg/L	T FE ug/L	D FE ug/L	T MN ug/L	D MN ug/L
RA-3-E	15	07/13/99	0745	23	16.8	172	36		1,290		4,020
	12	09/14/99	0812	28	8.4	172	116	76		5,230	
RA-3-E	13	05/16/00	0813	19	9	167	61		558		3,992
	14	07/20/00	0714	20	6.1	235	109		102		4,533
	13	09/12/00	0813	26	6.9	202	95		58		4,836
RA-7-E	9	07/13/99	1209	20	14.1	146	80		1,720		1,750
	7	09/14/99	1337	22	7.5	180	84	538		2,360	
RA-7-E	6	05/16/00	1236	20	7	178	77		412		2,307
	7	07/21/00	0737	21	5.8	208	74		134		1,828
	7	09/13/00	0807	176	7.3	186	66		777		2,158
RA-8-E	6	07/13/99	1336	19	16.3	202	111		290		2,050
	4.5	09/14/99	1435	25	9.5	198	97	476		3,450	
RA-8-E	4	05/16/00	1349	28	10	246	72		2,020		3,885
	4	07/21/00	0834	23	7.6	220	128		104		2,588
	4	09/13/00	1004	21	8.2	221	75		160		2,646
RA-25-E	10	07/13/99	0940	22	15.8	188	52		1,090		2,970
	7.5	09/14/99	1038	26	6.6	145	44	694		3,040	
RA-25-E	7	05/16/00	1037	20	7	151	58		493		1,803
	8	07/20/00	0938	24	5.6	177	74		405		2,560
	7	09/12/00	0937	21	6.2	161	71		707		1,967

Appendix Table 10. Rathbun Lake Sediment Data, 1999-2000.

STAT	DEPTH m	DATE mm/dd/yy	TIME hhmm	NH3 mg/kg	NO3/NO2 mg/kg	TKN mg/kg	TN mg/kg	TP mg/kg	TOP mg/kg	SED pH Top	SED pH Mid	SED pH Bot	SED TEMP °C
RA-3-S	15	07/13/1999	0745	1.92	U	20.88		6.41	U	6.5			17
	12	09/14/1999	0812	99.36	<0.25	1808		453	0.25	6.8		6.5	
RA-3-S	13	05/16/2000	0813	24.5	U	2438		633	0.15	6.7		6.5	
	14	07/20/2000	0714	213	U	1063		4072	0.77	6.4		6.2	21-19
	13	09/12/2000	0813	157	U	1343		15.3	2.57	7.4		7.3	25-24
RA-7-S	9	07/13/1999	1209	0.41	0.2	12.53		4.57	U	6.7	6.9	6.5	20
	7	09/14/1999	1337	47.9	<0.2	1883		456	0.2	6.7		6.5	
RA-7-S	6	05/16/2000	1236	11	U	2569		709	0.57	6.5		6.5	
	7	07/21/2000	0737	208	U	12640		6662	0.19	7.1		7.2	22-21
	7	09/13/2000	0807	265	U	7499		14.4	2.98	7.6		7.7	23-22
RA-8-S	6	07/13/1999	1336	2.05	U	24.66		7.23	U	6.9	6.9	6.9	20
	4.4	09/14/1999	1435	42.3	<0.27	2159		355	0.27	6.6		6.5	
RA-8-S	4	05/16/2000	1349	80.5	U	4236		865	0.79	6.5		6.5	
	4	07/21/2000	0834	1537	U	18620		10250	0.56	7		6.9	22-20
	4	09/13/2000	1004	1668	U	15723		29.8	2.89	7.1		7.1	23-24
RA-25-S	10	07/13/1999	0940	0.66	U	14.34		4.33	U	6.5			18
	7.5	09/14/1999	1038	64.9	19.6	826		81.1	0.26	6.5		6.5	
RA-25-S	7	05/16/2000	1037	32.1	U	5182		939	0.49	6.6		6.5	
	8	07/20/2000	0938	158	U	12030		3041	0.29	6.6		6.6	23-20
	7	09/12/2000	0937	260	U	13387		26.4	5.65	6.8		6.7	26-25

Appendix Table 11. Rathbun Lake Sediment Data, 1999-2000.

STAT	DEPTH m	DATE mmddyy	TIME hhmm	SO4 mg/L	TOC mg/L	VS mg/L	T FE ug/L	T MN ug/L	TS mg/L
RA-3-S	15	07/13/99	0745	1,199	5,827		34,000	1,370	
	12	09/14/99	0812	<246	10.1	5.92	24,900	1,280	41.6
RA-3-S	13	05/16/00	0813	57	104,270	4.3	23,000	929	52
	14	07/20/00	0714	56	21,527	3.7	21,308	929	53
	13	09/12/00	0813	250	29,460	5.4	23,273	963	
RA-7-S	9	07/13/99	1209	U	6,681		20,700	694	
	7	09/14/99	1337	<197		5.2	20,700	572	60.3
RA-7-S	6	05/16/00	1236	92	73,577	4.9	29,633	779	49.9
	7	07/21/00	0737	120	28,970	4.3	21,405	659	55
	7	09/13/00	0807	185	40,710	6.9	24,559	760	
RA-8-S	6	07/13/99	1336	U	7,662		28,800	1,025	
	4.5	09/14/99	1435	<271		7.9	32,700	1,070	42.3
RA-8-S	4	05/16/00	1349	52	119,908	8.3	28,821	988	36.7
	4	07/21/00	0834	150	20,994	6.2	30,355	973	36.5
	4	09/13/00	1004	167	44,140	8.5	32,728	1,006	
RA-25-S	10	07/13/99	0940	U	6,832		12,200	583	
	7.5	09/14/99	1038	<262		6.7	28,300	708	39.8
RA-25-S	7	05/16/00	1037	280	155,434	7.1	20,776	570	34.6
	8	07/20/00	0938	55	30,222	4.8	20,682	631	69
	7	09/12/00	0937	481	40,830	6.9	27,299	667	